EXHIBIT 16

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

GOOGLE LLC, PLAINTIFF, VS. SONOS, INC., DEFENDANT.	)	NO. 3:20-cv-06754-WHA
GOOGLE LLC, PLAINTIFF, VS. SONOS, INC., DEFENDANT.	)	NO. C 20-06754 WHA

ZOOM VIDEO DEPOSITION OF EXPERT WITNESS
DOUGLAS SCHMIDT, PH.D.
THURSDAY, MARCH 3, 2022

JOB NO. 5116748
REPORTED BY: D'ANNE MOUNGEY, CSR 7872

DEPOSITION OF DOUGLAS SCHMIDT, PH.D., TAKEN ON BEHALF OF GOOGLE AT REDWOOD CITY, CALIFORNIA, COMMENCING AT 9:08 A.M. ON THURSDAY, MARCH 3, 2022, BEFORE D'ANNE MOUNGEY, CSR 7872.

APPEARANCES OF COUNSEL:

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ALSO PRESENT:

KIMBERLEE DECKER, VIDEOGRAPHER

I N D E X

E X H I B I T S

QUESTIONS INSTRUCTED NOT TO ANSWER

(NONE)

REDWOOD CITY, CALIFORNIA

THURSDAY, MARCH 3, 2022; 9:08 A.M.

THE VIDEOGRAPHER: Good morning. We're on the record at 9:08 a.m. on March 3rd of 2022. 09:08:27

All participants are attending remotely.

Audio and video recording will continue to take place, unless all parties agree to go off the record. 09:08:58

This is media unit 1 of the recorded deposition of Douglas Schmidt, Ph.D., taken by counsel for Sonos in the matter of "Google versus Sonos," U.S. District Court, Northern District of California. 3:20-CV-06754. 09:09:16

And "Sonos versus Google, U.S. District Court, Northern District of California. 3:21-CV-7559.

My name is Kimberlee Decker from Veritext Legal Solutions and I am the videographer. The court reporter is D'Anne Moungey. I am not related to any party in this action, nor am I financially interested in the outcome. 09:09:39

Counsel and all present will now state their appearances and affiliations for the record. 09:09:50

If there are any objections to proceeding, please state them at the time of your appearance, beginning with the noticing attorney.

MR. KAPLAN: This is Marc Kaplan from Quinn Emanuel Urquhart & Sullivan on behalf of Google. 09:10:00

MR. LEE: This is George Lee from Lee Sullivan Shea & Smith on behalf of Sonos. I also have with me today Michael Boyea from Lee Sullivan Shea & Smith.

One clarification is that this deposition is being taken by Mr. Kaplan, who is counsel for Google in the case. 09:10:19

THE VIDEOGRAPHER: Will the court reporter please swear in the witness.

DOUGLAS SCHMIDT, PH.D.,

having been first duly sworn by the reporter, was examined and testified as follows:

MR. KAPLAN: Ready to proceed? 09:10:52

THE VIDEOGRAPHER: Please proceed.

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09:10:54

EXAMINATION

BY MR. KAPLAN:

Q Dr. Schmidt, can you please state your first and last name for the record.

A D-O-U-G-L-A-S, S-C-H-M-I-D-T. 09:11:01

Q And your county of residence?

A Williamson County.

Q Did you meet with any attorneys for Sonos to prepare for your deposition today?

A I did. 09:11:19

Q Who did you meet with?

A I met with George Lee, Jae Pak, and Michael Boyea.

Q How long did you meet with Mr. Pak, Mr. Lee and Mr. Boyea? 09:11:37

A At what point?

Q To prepare for your deposition today.

A Probably maybe four to six hours.

Q Did you meet with anyone else besides the attorneys for Sonos to prepare for your deposition today? 09:11:58

A No.

Q Dr. Schmidt, how long did you spend preparing your claim construction declaration?

A I don't recall off the top of my head. 09:12:19

Q So you have access to Exhibit Share?
A I do.
Q Could you open up Exhibit 1, please.
A Sure.
(Whereupon, Google Exhibit 1 was marked for identification by the Court Reporter.) 09:12:32
THE WITNESS: Okay. I have it open.
BY MR. KAPLAN:
Q This is the claim construction declaration that we're going to be discussing today and that you prepared; is that right? 09:12:49
A That is correct.
Q Roughly how long do you think you spent preparing this declaration? 09:13:03
A I'm sorry. I don't recall off the top of my head. It was not something I remember tracking in my mind.
Q Do you think it was more than 20 hours?
A 20 hours is probably a rough estimate. Something along those lines. 09:13:25
Q Dr. Schmidt, who is your current employer?
A I'm currently employed by Vanderbilt University.
Q You also do expert consulting? 09:13:45

A That is correct.
Q Do you do expert consulting out of the litigation context?
A I've done expert consulting outside the litigation context, that's correct, yes. 09:14:01
Q Roughly what percentage of your income do you think comes from expert consulting for litigation?
A Oh, that's a good question.
Again, I'm not really sure off the top of 09:14:14 my head.
Q Do you think it would be around 50 percent?
A No.
Q Do you think it would be more than 50 percent or less than 50 percent? 09:14:24
A Less than 50 percent.
Q Do you think it would be more than 25 percent?
A I'm not sure. I haven't looked at the -- I haven't looked at my tax -- 1099s for the past year. 09:14:36 I haven't got around to doing my taxes yet, so I don't know.
Q Dr. Schmidt, you've been deposed before; right?
A That's correct. 09:14:48

Q So you're familiar with the ground rules of depositions; is that fair?
A Yes.
Q I'll be very brief, then.
So the deposition process consists of me asking you questions and you responding to them fully and truthfully. 09:14:59
Understand?
A I do.
Q And from time to time your attorney may interpose an objection. The objection is generally just to preserve the record, so what you should do is let your attorney interpose his objection and then answer the question, unless you're instructed not to answer for some reason. 09:15:08 09:15:21
Does that make sense?
A It does.
Q We can take a break whenever you need during the deposition. And we're not going to be going particularly long today. Just let me know if you would like a break. The only thing I ask is if there is a question pending, that you answer the question before we take a break. Okay? 09:15:31
A Sure.
Q Everything that is being said at this 09:15:42

deposition is being taken down by the court reporter in realtime, so we should try not to talk over each other to make her job a bit easier today.

Does that make sense?

A It does. 09:15:53

Q And if at any time in the deposition -- I guarantee you there will be times that I ask you a question that's not clear to you. Please let me know and I will try to clarify it for you. Okay?

A You bet. 09:16:05

Q The court reporter has placed you under oath. You understand that your testimony is being given under oath and subject to penalty of perjury, just as if you were testifying in a court of law?

Do you understand that? 09:16:18

A Yes.

Q And because of that, it's very important that we get your most accurate and full testimony today.

Is there any reason you can't testify 09:16:28 accurately and fully today?

A No.

Q Dr. Schmidt, you mentioned that you're a professor at Vanderbilt University.

Do you have a particular field of 09:16:43

expertise?

A I have a number of areas that I focus on. I focus on -- my research focuses on mobile Cloud computing, distributed and network systems, cyber physical systems, software engineering, distributed realtime and embedded systems, machine learning, and artificial intelligence, data science. 09:17:25

And I also teach a number of courses related to mobile device programming and accessing Cloud services, web services and so on. 09:17:49

Q That's a long list.

Dr. Schmidt, which of those fields of expertise did you think were applicable to the opinions that you issued in your claim construction declaration? 09:18:08

A Well, many of those fields relate to the topics that I opine upon here. Certainly topics related to distributed and network systems, mobile Cloud computing, systems related to software engineering, software development, and, in general, my knowledge about web-based programming, web systems. 09:18:27

I draw from many of my different fields of expertise for declarations in general and reports in general. And this particular one, it would be a 09:18:45

number of those different areas that I mentioned before.

Q Would you say that your background in software engineering was important to your declarations? 09:18:58

A Certainly software engineering plays a role in understanding how almost everything else I do related to distributed systems or web-based systems or cyber systems, and so on, and mobile Cloud computing. My knowledge of software design and 09:19:14 testing, programming, which is part and parcel of software engineering, plays a key part in my experience and my expertise in this field -- these fields.

Q Do you teach courses on software 09:19:28 engineering?

A I have taught courses on software engineering in the past. My current courses focus largely again on developing mobile applications in Cloud computing environments, and software 09:19:42 engineering plays a key part in terms of software design, software implementation techniques, software testing, and quality assurance techniques, software processes.

So pretty much everything I do ultimately 09:19:58

is based upon my knowledge of effective software development, techniques and practices.

Q Which software languages have you taught in your course work?

A Oh, gosh. Lots. So I've taught -- going back to the early days when I was actually a grad student, I taught courses in Ada, and Pascal, and C and C++. 09:20:18

And then later when I became a professor, I taught courses that related to Java and JavaScript and various other scripting languages, very shell script languages. 09:20:38

And I'm probably forgetting a few. I think I taught courses using functional programming languages and/or functional programming features in modern languages, like functional program features in C++, functional programming features in Java and so on. 09:20:54

I'm probably leaving a few languages out, but I've taught literally hundreds of courses over my 35 plus years as a professional, so I've encountered lots of different languages. 09:21:08

MR. KAPLAN: Dr. Schmidt, I'm going to introduce another exhibit, which will be the '615 Patent. 09:21:28

Let me know when you see that.

(Whereupon, Google Exhibit 2 was marked for identification by the Court Reporter.)

THE WITNESS: I have successfully downloaded that patent. 09:21:54

BY MR. KAPLAN:

Q Okay. You're familiar with the '615 Patent; right?

A That's correct. 09:22:01

Q And the declaration that you issued that's going to be available, you can download it and refer to it as you want. This isn't a memory test.

But for now, I'm going to be asking you about the '615 Patent. Okay? 09:22:16

A Okay.

Q I would like you to turn to claim 13 of the '615 Patent. For reference, it begins column 19, line 48, or so.

A I'm there. 09:22:43

Q Okay. You're familiar with claim 13 of the '615 Patent?

A I am.

Q The first element of claim 13 of the '615 Patent reads: 09:22:58

"A tangible nontransitory computer readable storage medium, including instructions for execution by a processor, instructions when executed cause a control device to implement a method comprising."

Do you see that?

A I do.

Q Is source code executable by a processor? 09:23:19

MR. LEE: Objection to form.

THE WITNESS: Are you speaking -- what level do you mean executable?

BY MR. KAPLAN:

Q I'm not sure how to rephrase the question. 09:23:49

This source code, in its source code form, that's readable by a human, executable by a processor?

MR. LEE: Same objection.

THE WITNESS: It -- 09:24:03

MR. LEE: Vague and incomplete.

THE WITNESS: It depends.

BY MR. KAPLAN:

Q So source code as it's written by humans is executable by a processor? 09:24:18

MR. LEE: Same objection; mischaracterizes.

THE WITNESS: Depending on the context, source code could either be compiled by some kind of translator into some lower level formalism typically referred to as assembly code or perhaps machine code. And under some scenarios, the machine code would then be what would be executed by a processor directly by the processor or directly as would be the case in a normal chip set. 09:24:40

But, of course, depending on what kind of language and what kind of environment, there could also be interpreted code, such that the source code would be interpreted by some type of interpreter which would be running on top of a processor. 09:24:59

That's why I'm a little confused as to your question, what you mean by "source code" in this context, since it's a little bit vague as to what that term means. 09:25:15

BY MR. KAPLAN:

Q Typically machine code rather than source code is what is executed by a processor; is that fair? 09:25:24

MR. LEE: Objection to form.

THE WITNESS: Again, it really depends on the context in which you're referring, because you 09:25:35

can have hardware -- again, it just depends on the context.

There's no one answer there that covers everything in its entirety.

BY MR. KAPLAN: 09:25:52

Q So in your view, source code can be directly executed by a processor?

MR. LEE: Objection to form.

THE WITNESS: Again, I'm not sure what you mean by "a processor." But I think I put forth at least two different scenarios that are very common, one of which is source code in some language such as C++ or Java or C or JavaScript or whatnot. 09:26:01

Could be translated by a compiler into a lower level formalism either, again, assembly code or machine code and that code could be executed by a processor. 09:26:22

But depending on what kind of processor you're referring to, there's also interpreters that can execute code in its, quote, "source form." 09:26:35

So, again, there's no one answer there that applies in every situation.

BY MR. KAPLAN:

Q For mobile applications distributed through IOS or the Android app store, are those executed in 09:26:50

source code form?

MR. LEE: Objection to form, vague, incomplete.

THE WITNESS: Again, we'd have to be more specific. 09:27:07

So there are a whole range of different ways of being able to run mobile applications. Sometimes we have mobile apps or -- called native apps, which are often written in languages like Java or Kotlin, for the Android operating platform, or 09:27:24 Objective-C or, say, Swift for the Apple IOS operating platform. That's one way to do things.

There's other ways you could implement mobile applications using scripting languages and conceivably possible to write for processors that 09:27:43 would interpret the programs written in interpreted code.

So I would have to know more specifics about the details of a particular platform to give you a precise answer that wouldn't leave out certain 09:27:59 options that are either doable or have been done.

BY MR. KAPLAN:

Q In the IOS ecosystem, can you give me an example of a program that's distributed through IOS -- 09:28:14

MR. LEE: Objection; foundation --

BY MR. KAPLAN:

Q -- that is executed in source code form, as opposed to machine readable code?

MR. LEE: Objection; foundation, form. 09:28:23

THE WITNESS: Again, as I was mentioning earlier, scripting languages like JavaScript are interpreted running on top of various forms of virtual or physical machines.

So they would be an example of something -- 09:28:44
those types of languages would be examples of things where the source code is really what's executed by the underlying virtual machine as opposed to being compiled down to a lower level.

BY MR. KAPLAN: 09:29:01

Q You mentioned programs are generally written in Swift and Objective-C that are posted on the app store; is that right?

A I think I said those were native. Native apps. It's possible to run applications on IOS that 09:29:11
are written in other languages besides Swift or Objective-C.

Q Are programs distributed through the app store that aren't written in Swift or Objective-C?

MR. LEE: Objection; foundation. 09:29:28

THE WITNESS: Well, there's a wide range of -- what should we call them -- mobile device independent programming frameworks and languages, such as Unity or PhoneGap or React Native, just to list a few, that allow developers to write in other languages besides Objective-C and Swift and have those apps run in the context of mobile devices. 09:29:52

BY MR. KAPLAN:

Q For the file that's downloaded from the Apple App Store to the user's device, is that file in executable form or does it need to be extracted and installed? 09:30:09

MR. LEE: Objection; foundation, form.

THE WITNESS: I'm not sure what you mean by "extracted." 09:30:26

BY MR. KAPLAN:

Q Can a mobile processor within an iPhone execute a downloadable from the IOS app store without any processing being done to that file?

MR. LEE: Objection; foundation, form, vague, incomplete hypothetical, outside the scope. 09:30:42

THE WITNESS: You'll have to give me a more specific example. I'm not really sure off the top of my head.

/// 09:30:59

BY MR. KAPLAN:

Q What more specifics would you need?

MR. LEE: Objection; form.

THE WITNESS: I'm just not sure what you're -- when you talk about extracted or additional processing, I'm not sure what those -- I'm not sure how you're using those terms. 09:31:11

BY MR. KAPLAN:

Q What is the format of an app that's downloaded from the Apple App Store? 09:31:21

MR. LEE: Objection; vague, foundation.

THE WITNESS: I'm not sure I recall off the top of my head.

BY MR. KAPLAN:

Q Do you know what the format of an app that's downloaded from the Google App Store is called? 09:31:35

MR. LEE: Same objection.

THE WITNESS: Well, again, if you're referring to something like an APK file, that may be what you're referring to, but there's lots of different pieces there, so I'm not sure if that's what you're getting at. 09:31:46

BY MR. KAPLAN:

Q What is an APK file? 09:31:56

A It's basically a file that describes the various components that are necessary to make up an application that runs in the context of Google -- of Android, really.

Q Is an APK file executable? 09:32:09

MR. LEE: Objection; foundation, relevance.

THE WITNESS: I'm not sure what you mean by "executable."

BY MR. KAPLAN:

Q Can a processor execute an APK without additional processing being done on the APK? 09:32:22

MR. LEE: Objection; foundation, form, compound.

THE WITNESS: Again, I'm really not sure what you're asking. An APK file contains various types of components or resources and a -- the Google platform, the package manager. 09:32:37

In fact, portion of that platform uses the contents of the APK file. It does processing to it. It executes it. 09:32:57

I think something else jumped in. That wasn't me.

I said the Google package manager -- I'm sorry -- the Android package manager is the -- one of the various pieces of the Android platform that 09:33:16

uses the APK file -- the contents of the APK file to install an application -- a native application.

There's other ways of installing and running applications on an Android or global device besides that, but that's one way to do it. 09:33:34

BY MR. KAPLAN:

Q And after the native application is installed, can it be executed?

MR. LEE: Objection; form, foundation, relevance. 09:33:41

You know, Marc, I let this go a little bit, but we're really here to talk about claim construction and his declaration, I thought, and I'm not really sure how any of this relates. It's outside the scope. 09:33:51

Sounds like you may have some other infringement questions you're trying to get to, but I think that would be improper here.

Try to get back to his declaration or some of the exhibits you marked. 09:34:03

BY MR. KAPLAN:

Q You can answer.

A Can you repeat the question, please?

Q It was for the native application that is installed, that can be executed; right? 09:34:19

MR. LEE: Objection to form, foundation.

Once again, Marc, this is really nothing to do with claim construction, his declaration that we're here for. You can get this from your expert if you want. 09:34:32

But I just don't see that this is part of his declaration. In fact, you have the exhibits marked and the questions don't relate to it at all.

You can answer.

THE WITNESS: You have to explain what 09:34:44 you mean by "execute" and what's doing the execution, how does that execution differ from the previous steps required from an APK file.

I'm sort of at a loss for understanding the context of the question. 09:34:56

BY MR. KAPLAN:

Q If you can't answer, that's okay. If you need more information, let me know.

A The terms you're using, execute -- execute by what? I don't know what's doing the execution. 09:35:12

Q This is going to be my last question on this topic, but as we were just discussing, there's an APK download that was installed and then the question was simply: Can it be executed by the device? 09:35:34

A Under what set of assumptions?
Q Are there assumptions necessary?
A Sure.
Q Tell me what assumptions you think are necessary. 09:35:54
MR. LEE: Objection to the form.
THE WITNESS: It's the -- there's so many assumptions that are required there.
Is it actually a validate APK file?
Is this a user of the device? 09:36:05
If there's a user of the device, does the user actually want to launch whatever was downloaded?
Those are all things.
Another thing that's still not clear from 09:36:14 the scope of your question is: What does it mean to execute by the device?
What's doing the execution?
Earlier you asked me about -- appeared like you were asking about a processor, but now it sounds 09:36:25 like you're talking about a device.
Is the device hardware?
Is the device software?
There's so many parts to the hypothetical you're putting forth there, so I need to understand 09:36:35

more thoroughly what it is you're putting forth in the hypothetical to be able to give an answer that wouldn't just be a wild guess.

(Speaking simultaneously.)

THE REPORTER: I'm sorry. You were speaking over each other. 09:36:52

MR. LEE: I didn't realize you were talking, Marc.

Go ahead.

BY MR. KAPLAN: 09:36:58

Q Let's move to the second element in claim 13 which begins:

"Causing a graphical interface to display a control interface including one or more transport controls to control playback by the control device." 09:37:05

Do you see that?

A I do.

Q Do you have an understanding of what this claim element means? 09:37:15

MR. LEE: Objection; form, foundation, relevance.

I don't think this is part of his declaration. 09:37:25

You can answer, if you can.

THE WITNESS: I do understand what the claim element means, yes.

BY MR. KAPLAN:

Q What are transport controls? 09:37:41

A Let's go look.

As has been noted a number of times, I think that is probably not something that was part of my declaration, so I will have to go through and read the spec to see if I can find it. 09:38:01

This file doesn't appear to be searchable, so this is going to take a very long time. I have to read through the entire patent, since the file you've given me is not searchable.

Q That's weird. It's searchable on my side. 09:38:30

A When I search for "transport," it doesn't find anything.

Q Did you download the file or are you looking at it in -- on the Exhibit Share website?

A I did download it. 09:38:53

Let me try to look for it in the Exhibit Share.

Q I'm looking at it on the website. It's OCR for me.

A Yeah. I'm unable -- when I just click on 09:39:09

the link that's provided in the Exhibit Share, it doesn't work at all.

Q So if you click the link -- I see.

Give me a moment.

It's funny. I have one version of the patent in Exhibit Share that is searchable and one version that isn't now, so I understand your issues. 09:39:55

I think, Dr. Schmidt, if you right click the document and download it --

A Yeah, that's what I've done. I've downloaded it. 09:40:12

Q It's not searchable after you do that?

A No. I mean, it's very weird. I have like -- I'm -- I downloaded my exhibit -- my declaration, sorry, my claim construction declaration, and that's searchable quite well. I can search that no problem. 09:40:30

Q Huh. Hmm.

So when you downloaded the '615 Patent natively to your desktop, it's not searchable when you open it in Adobe or Chrome? 09:40:45

A Yeah. No. It's weird.

Right now I'm searching on transport and it's highlighting the word "on" in the middle of claim 9, and so it's like now I click on "next" and 09:41:00

now it's highlighting the word "playback."

For some reason there's something wrong with that PDF. It's probably something wrong with the PDF file, I guess.

Is there another way to get the '615 Patent? 09:41:20

Q I mean, it's not ideal, but you could go to Google patents and download it yourself from that website.

A Let me try that, if you don't mind. 09:41:33

Q I'll probably have to ask you a couple questions to make sure you're looking at the same document, but this is just the nature of online depositions these days, I suppose.

A Let me see if I can -- what is it, 9967615? 09:41:47

I think that's the right one.

The patent's name is "Networked Music Playback"; is that right?

Q Correct.

A Good. That part looks good so far. 09:42:03

That is so weird.

Q That doesn't work either, downloading it from Google?

A That's the same problem. Exactly the same problem. 09:42:27

Q I just did it on my computer and I can search it, so --

A Let me ask another -- is it the case that the specification for the '033 Patent is the same as the one for the '615? 09:42:42

Q I believe they're the same.

A Because I have a copy of the '033 Patent that seems to be searchable. I have no idea why.

Q Well, we can use the '033 Patent, that's fine. 09:43:00

A Okay. Let's do that. It won't have all the same claims, but we can probably find those other ways.

Q Right.

MR. KAPLAN: Let me introduce the '033 Patent as an exhibit and I'll ask some questions to make sure we're looking at the same document, even though you're using your version. 09:43:06

Is that okay?

THE WITNESS: Okay. That's fine. 09:43:17

MR. KAPLAN: I've introduced as Exhibit 3, U.S. Patent number 10779033.

THE WITNESS: All right.

///

/// 09:44:09

(Whereupon, Google Exhibit 3 was marked for identification by the Court Reporter.)

BY MR. KAPLAN:

Q Do you see that exhibit? 09:44:11

A It's loading. It should be there momentarily.

Q Now, given the searching issues, Dr. Schmidt, can you confirm that the version of the '033 Patent that you're looking at is the same as 09:44:21 the '033 Patent that I introduced as Exhibit 3?

A I'm actually using the version that you just put up there.

Q Okay.

A And it works fine. Go figure. I can 09:44:33 search that one.

So the good news is, I can read the claims from '615, but I can search in the '033. I think between those two things we should be fine.

Q Okay. So I'm going to ask you a slightly 09:45:04 different question. Let's just turn back to the '615 Patent.

A Okay. I'm there.

Q If you go to claim 13.

A I'm there. 09:45:27

Q In claim 13, there's a claim term "multimedia content."

Do you see that?

A I do.

Q Do you have an understanding of what multimedia content means in the context of the '615 Patent? 09:45:57

MR. LEE: Calls for a legal conclusion.

You can answer, if you can.

THE WITNESS: Let me just take a quick look and see if I discuss that in my declaration. 09:46:16

So let's see. Let me see if I can point you -- well, if you take a look at my claim construction declaration, paragraph 33, page 10, I mention a description of -- I'm summarizing the '615 Patent, and its description at a local playback system. 09:46:52

And it talks about how the local playback system is capable of playing back multimedia content, such as audio. I think that's the first sentence in paragraph 33. It gives a bunch of references to '615 Patent for various portions describing that. 09:47:09

So if we go back to the patent that I can now search, then -- let me find something real quick 09:47:30

here.

(Document reviewed by the witness.)

THE WITNESS: So in reading through the patent spec, it makes it clear that audio is an example of multimedia content. 09:48:40

BY MR. KAPLAN:

Q And what is an example of audio that would be multimedia content?

A Well, if you take a look on paragraph 47 of my declaration, it mentions a single song would be 09:49:26 an example of multimedia content. I give other examples of other things it can be. Multimedia content as well.

It says: Single song, a video, particular Internet radio station, a user defined playlist with 09:49:44 multiple songs or videos, a service defined playlist of multiple songs, videos, and album of songs, et cetera.

Q And how would one identify that a person was looking at a single song? 09:50:06

MR. LEE: Objection to form.

THE WITNESS: I'm sorry. I don't understand your question, what does it mean to look at a single song?

/// 09:50:21

BY MR. KAPLAN:

Q What are the -- you said a single song as an example of multimedia content; is that fair?

A That's one example, yes.

Q And how do I know that I'm looking at a single song which is an example of multimedia content? 09:50:30

MR. LEE: Objection to form, vague.

THE WITNESS: In what context?

BY MR. KAPLAN: 09:50:47

Q Like what other characteristics of the single song that we're talking about which is an example of multimedia content?

MR. LEE: Objection to form; vague, and confusing. 09:51:02

THE WITNESS: I guess I don't understand when you say "looking." Looking at a -- looking at audio. What does that mean by "looking at it"?

Are you referring to some kind of user interface? 09:51:14

Are you referring to looking at a thumb drive that contains the contents?

What does it mean to look at a song in the way you're asking the question?

/// 09:51:26

BY MR. KAPLAN:

Q What would be an example of a single song that would meet your definition of audio?

A Again, in what context are you asking?

Q You said that a single song is an example of audio, which is an example of multimedia content; right? 09:51:41

A I believe I said something along those lines, but I'm trying to understand what -- I'm trying to understand what you're asking me, the context in which you're asking me. 09:51:57

Are you asking -- sorry. Go ahead.

Q Well, so a single song is an example of audio which is an example of multimedia content and my question is: What's an example of a single song? 09:52:08

MR. LEE: Objection to form.

THE WITNESS: Again, I'm not sure I understand in what context you're asking me, what's an example.

You're asking me to name songs or are you asking me to name formats that you could use to play songs back, be they electronic or magnetic or some other media? 09:52:23

I'm not sure I understand the context of the question. 09:52:37

BY MR. KAPLAN:

Q Would an Mp3 file of Drake's newest hit be an example of a single song in this context?

MR. LEE: Objection; foundation.

THE WITNESS: I'm not familiar with Drake's latest hit, but one -- there's many different ways to represent audio content. And Mp3 files are one way to represent audio content. 09:52:50

BY MR. KAPLAN:

Q Are there any other ways that you could represent audio content that you're aware of? 09:53:03

A Sure.

Q What are those?

A There's other formats besides Mp3. There's other formats besides digital formats that can be used to represent audio content. 09:53:20

Q What's an example of a format that's not digital format that could be used to represent audio content?

A In what context? 09:53:41

Q I thought you just said that you could represent audio in the digital context, for example, with an Mp3 or you could represent it in the non-digital context; is that --

A That is correct. That is correct. 09:53:56

Q What would be an example of a non-digital context?

A A 45 record from back in the day.

Q Okay. Multimedia content playback is referred to the specification of the '615 Patent and the '033 Patent. 09:54:22

Do you understand that?

A I see the specification for the '033 and '615 Patent includes the phrase "multimedia playback," yes, I see that. 09:54:56

Q I was actually looking at "multimedia content playback."

Do you see that, too?

A I see several references to "multimedia content playback" -- 09:55:28

Q What would -- sorry. Go ahead.

A -- in the specification.

Q Okay. What would be an example of multimedia content playback?

A The way I see the phrase used in the specification appears, at least in column 2, starting on line 23 where it refers to a "multimedia content playback," and inside parenthesis it then says, "EG Sonos TM," and then it says "system." 09:55:40

Q Does multimedia content playback just mean 09:56:15

playback of the multimedia content we were just discussing?

A I don't believe I've rendered an opinion on that. I would have to take a closer look to see how that particular term is used, but I don't believe I've rendered an opinion on the meaning of "multimedia content." 09:56:32

Let me take a look before I say that. Let me take a look and see what I said, if I said anything. 09:56:44

(Document reviewed by the witness.)

THE WITNESS: I don't think I -- I don't think my declaration, unless I may need to read through it more carefully, but off the top of my head, I don't think it talks about the phrase "multimedia content playback." 09:57:07

I would have to take a more careful look to see what that term means before I render an opinion on it.

BY MR. KAPLAN: 09:57:19

Q Can I turn your attention back to claim 13 of the '615 Patent.

A I'm there.

Q Okay. Under -- I'm going to call it element A, which is roughly halfway down in the 09:57:34

claim 13.

Do you see that?

A I think so.

Q The -- towards the end of paragraph A, the claim reads: 09:57:56

"Corresponding to respective locations of a multimedia content."

Do you see that?

A I do. 09:58:04

Q Do you have an understanding of what that means?

A Yes.

Q What does it mean?

A So in the context of what it's describing, 09:58:12 it's explaining how there's one or more resource locators that are corresponding to respective locations of the multimedia content.

So my understanding of corresponding to in this context would be something akin to associated 09:58:31 with or related to.

Q Is the resource locator providing a location?

MR. LEE: Objection to form.

THE WITNESS: I'm not sure what you mean by 09:59:01

"providing a location."

BY MR. KAPLAN:

Q Does the resource locator have to provide a location to meet this claim element?

MR. LEE: Objection to form, calls for a legal conclusion, scope. 09:59:14

THE WITNESS: I would have to read through the specification more carefully to get a sense of how resource locator relates to providing a location, but what my understanding here as the claim is written, resource locator is the phrase corresponding to mean associated with or related to. 09:59:34

So it doesn't look to me like it necessarily has to provide a location directly. It just needs to be able to be associated with locations and there's many different ways to do that, above and beyond providing a particular location of a resource. 09:59:51

BY MR. KAPLAN:

Q Is there a difference in your mind between the resource locator being associated with the location versus related to a location? 10:00:17

MR. LEE: Objection to form.

THE WITNESS: I think those are largely synonymous. 10:00:30

BY MR. KAPLAN:

Q Is it fair to say that, in your view, the resource locator doesn't have to provide a location?

MR. LEE: Objection to form.

THE WITNESS: Well, I describe this topic in my claim construction declaration in several places, one of which is in paragraph 1 of 1, and I describe what my understanding that a POSITA would have had at the time of the invention, which is that it would be a resource locator, generally refers to information that enables the device to access a resource or be associated with or related to a resource. 10:00:59 10:01:22

And I mention that that information could take various forms. It could take the form of some kind of identifier, such as maybe a key in a database, for example, an address perhaps in memory. It could be a uniform resource indicator, which is different from a Uniform Resource Locator. 10:01:33

It could be other things that facilitate some means by which a device could access a resource. And there's many, many other ways of doing it beyond the ones I listed there. Those are just some of the ones that would be obvious, but there's other ones that could be used, things like 10:01:53 10:02:08

object references or monikers or UUIDs. There's a whole bunch of different ways to identify a resource.

So some of those would involve addresses, some addresses in the sense of, say, an IP address or a port number in the Internet, but many other ways of being able to identify resources that would not require addresses. 10:02:23

In fact, it's even possible to use URLs that don't encode an address in them by using a concept of persistent URL, which is really more of an access to a locator service as opposed to directly encoding the address into the URL itself. 10:02:39

BY MR. KAPLAN:

Q Would a song name correspond to a location of that song? 10:02:53

MR. LEE: Objection to form.

THE WITNESS: Depends quite a bit on how the lookup model would work. So it depends on the context, it depends on the use case. 10:03:13

BY MR. KAPLAN:

Q So a song might correspond to a location of another resource or it might not; is that right?

A Again, it depends on the implementation and the way in which the data models and data stores are 10:03:28

managed.

Q So a song name might correspond to a location of a resource, just depending on how the system is architected; is that right?

A I wouldn't quite use those terms, but depending on how the data model or the data management portion of the system is structured, there's various ways of being able to identify resources. An identifier could be used. The identifier conceivably could be the name of the song. That could be one way to do it, depending on how the data model and the database -- or the data management system is constructed. 10:03:47 10:04:04

Might not be the most efficient way of doing it in terms of minimizing footprint, but that's really just an encoding question. 10:04:18

Q So as long as there's a way to translate between the song name and its address, would the song be corresponding to a location of the song?

MR. LEE: Objection to form. 10:04:42

THE WITNESS: Again, I would have to understand a little bit better about what you mean by some of those terms, but as I describe here in paragraph 1 of 1 of my claim construction declaration, the concept of resource locator 10:04:58

generally refers to some kind of information which could be many different forms.

It could take the form of identifiers or addresses, or URIs, URLs, object references, whatever -- whatever is needed to be able to un-ambiguously associate that resource locator with the actual resource that's of interest. 10:05:14

BY MR. KAPLAN:

Q So let me give you an example. I'm on iTunes. I download an Mp3 of my favorite artist. 10:05:31

Are you with me so far?

A Okay.

Q I've got the Mp3 stored on my own computer and I play it from time to time. Okay?

A Okay. 10:05:47

Q In that hypothetical, would the song name correspond to a location of where the song is stored?

MR. LEE: Objection to form, foundation, incomplete. 10:06:03

THE WITNESS: When you say "song name," I'm not quite sure I understand how you're using the term "song name."

BY MR. KAPLAN:

Q So when I downloaded the song from iTunes, 10:06:12

I saved it as "Drake's new hit" and that's the song name.

MR. LEE: Objection to form. Same objection.

THE WITNESS: So depends on a whole bunch of different other factors as to whether that song name would be the resource locator. 10:06:28

BY MR. KAPLAN:

Q So in my hypothetical, after I downloaded the song from iTunes and saved it as Drake's song in my computer, it's possible, in your view, that the song name would correspond to the location of the song? 10:06:45

A Again, I would have to -- there's so many different pieces of your hypothetical that I don't quite understand yet, so it's hard to be able to answer that question. 10:07:03

Q What other information can I give you that will allow you to answer the question?

A So where did you store the file? 10:07:15

Are you -- are you --

Q I'm sorry. Let me take it one by one.

I stored it on my desktop.

A And in what did you -- what specifically was the name that you used? 10:07:35

Q "New hit song" was the name of the file.
A Does the file have a file extension?
Q Dot Mp3.
A Okay. Are there spaces or hyphens?
Q There are spaces. 10:07:58
A So if I understand your question -- or your hypothetical, rather, if there was a file in some folder in your -- or in your desktop -- say, in your desktop, there's a file that has a name that is "Drake's new hit song" dot Mp3, then were you to 10:08:24
click on that in your finder or file Explorer, or whatever desktop you're using, then that would cause -- assuming that everything was configured properly in your operating system, that would cause the appropriate media player to be launched to play 10:08:48
that song.

So this is the part I'm a little confused on. Is the name of the song, what's associated? Well, there's a way to be able to launch it and this is just straightforward from using a file browser on 10:09:05
a desktop computer or laptop or whatever.

You're simply launching something that has a name and that is associated with the content that's being played.

Q So is your answer yes, the name of the file 10:09:24

would correspond to the location?

A Well --

MR. LEE: Objection to form.

THE WITNESS: -- the way I would -- again, there's lots of different ways to look at that, but in that particular situation, I was simply explaining how if you have a file on the desktop computer and you launch the file and the file has the appropriate suffix that's understood by the system and the system knows how to launch the appropriate app to properly do something with whatever it is you're launching, that that will cause it to be launched. 10:09:38 10:09:59

As to how that relates to the original topic we were discussing, which is from element A in claim 13 in the '615 Patent, that was describing resource locators that correspond to respective locations of multimedia content. 10:10:19

So topping off the stack a couple layers, the name of the file could be one way to associate or locate the multimedia content. 10:10:44

BY MR. KAPLAN:

Q So in the hypothetical, the name of the file could be a resource locator?

A Well, I think that's consistent with what I 10:11:00

say here in paragraph 101 of my claim construction declaration, that a resource locator generally refers to information that enables a device to access a resource and that that information could take various forms, such as an identifier, an address, a URI, a URL, and so on.

And so the name of a file -- or I guess more specifically here, the ability provided by a file browser on a modern computer to be able to click on the name of something that has an application associated with it, that's a form of an identifier. That could then be able to facilitate a device accessing your resource. 10:11:24 10:11:44

Q Let me add to the hypothetical.

So we've got the song stored on the desktop. The file name is New Hit Song. 10:12:06

Within that file there's metadata identifying the name of the song, which is going to be A1 for purposes of the hypothetical.

Do you follow so far? 10:12:23

A I think so.

Q Would A1 be -- strike that.

Would A1 correspond to the location of the file?

MR. LEE: Objection to form, incomplete. 10:12:37

THE WITNESS: I don't understand what you mean.

BY MR. KAPLAN:

Q We have a song that has been downloaded. It has a file name. It also has within the metadata, some name information. 10:12:51

And my question is whether that name information corresponds to the location of the file?

MR. LEE: Same objection.

THE WITNESS: Yeah. I would have to look more carefully into the way in which that information be stored. I don't know off the top of my head. I would have to look into it in more detail to see. 10:13:08

I'm also not sure what name you're referring to in the metadata either. 10:13:18

BY MR. KAPLAN:

Q On that last point, are you aware that files can be associated with metadata?

A Files can be associated -- in what context? 10:13:38

Q Well, if you download an Mp3, are you aware that programs can pull out metadata from that file to identify, for example, artist and song name?

A Yes.

Q So in this example, I'm asking whether the 10:14:08

song name metadata corresponds to the location of the file?

MR. LEE: Objection to form, incomplete hypothetical.

THE WITNESS: I am -- I would have to look more carefully into the way in which the Mp3 format stores name information to see what the relationship is, if any, between metadata associated with the name of the song and the location of the song to be able to answer that question precisely. 10:14:18 10:14:34

BY MR. KAPLAN:

Q What would be the ways in which it was stored where it would correspond to the location of the file?

MR. LEE: Objection to form. 10:14:48

THE WITNESS: Again, without knowing more about the way -- the specific detail about how Mp3 stores names in metadata, I would have to look at that in more detail to know.

BY MR. KAPLAN: 10:15:07

Q I'm trying to ask a question and maybe the answer is I don't know, but I want to make sure the question is clear.

What I'm trying to ask is: What would be the instances where you would say yes, that main 10:15:15

metadata information does correspond to the location of the file?

MR. LEE: Objection to form.

THE WITNESS: Again, I would have to look more deeply into the specifics of how metadata is stored in Mp3 in order to know what relationship, if any, there would be between metadata that's stored in Mp3 file associated with name and any location relevance, or not, that there might be, so I just don't know that off the top of my head. 10:15:30 10:15:50

I would prefer not to speculate on that because I would just be making a guess. And in order to do a proper analysis, I would have to look more carefully how it's stored.

MR. LEE: Marc, I think we've been going about an hour. 10:16:02

Is this a good time for a break?

MR. KAPLAN: I'm happy to take a break.

THE VIDEOGRAPHER: We're off the record at 10:16 a.m. 10:16:10

(Whereupon, a recess was held from 10:16 a.m. to 10:28 a.m.)

THE VIDEOGRAPHER: We're on the record at 10:28 a.m.

/// 10:28:28

BY MR. KAPLAN:

Q Dr. Schmidt, welcome back.

A Thank you.

Q Do you understand you're still under oath?

A Yes. 10:28:33

Q Did you have any discussions with your attorneys about the substance of your testimony during the break?

A No.

Q Let's turn to paragraph 47 of your claim construction declaration, which is Exhibit 1. 10:28:41

A I'm there.

Q In this first sentence in paragraph 47, you wrote that:

"POSITA would have understood that a 'playback queue' is, in more of a colloquial sense, a 'container' that can hold multimedia for playback and that different types and arrangements of multimedia could be queued," and it goes on from there. 10:29:14 10:29:28

Do you see that?

You put "container" in quotes there.

What does "container" mean for you in this 10:29:39

context?

A It's basically the data construct of some kind, as I say in the rest of the sentence, can be used to hold multimedia or media content for playback. 10:29:56

Q Is there a difference between a data construct and a data structure?

A Depends on the context.

Q Let's start with what you understand both to mean. 10:30:16

So what is a data construct to you?

A Well, I give examples of data constructs in paragraph 58, a little bit further down from paragraph 47 that we were just discussing, and I gave examples of data constructs. 10:30:39

So a single data variable would be an example of a data construct. Multiple data variables would be an example of a data construct. A data array, those would be -- that would be another example of a data construct. 10:30:55

It's some way of arranging data, one or more datum or data.

Q For the multiple data variables that would be a data construct to you, would there need to be a relationship between those multiple data variables 10:31:20

or not?

MR. LEE: Objection to form.

THE WITNESS: Help me understand what you mean by "relationship."

BY MR. KAPLAN: 10:31:31

Q Well, let me ask the question: Could you have unrelated multiple data variables that would form a data construct, in your view?

MR. LEE: Objection to form.

THE WITNESS: Again, I'm not sure what 10:31:43 "unrelated" means in this context as you're using the term.

Related to what?

BY MR. KAPLAN:

Q Well, what did you mean by saying "multiple 10:31:52 data variables could be a data construct"?

What would be -- strike that.

What would be an example, in your view, of multiple data variables that would form a data construct? 10:32:07

A So if you take a look at paragraph 88 in my claim construction declaration, I give an example, I believe, that illustrates this.

It says:

"A POSITA would have known 10:32:22

that a 'playback device' could store in its memory plural 'multimedia items' across multiple data variables (in other words, not stored as an 'ordered list') and still playback the media in a specified order."

And then I go on and talk in the rest of that paragraph about how the playback device could have a data variable called "play_now." It gets 10:32:44
populated by a first multimedia item. And another data variable called "play_next" that gets populated by a second multimedia item. And then have the logic play the media corresponding to the play_now data variable before the media corresponding to the 10:33:00
play_next data variable.

And, of course, this is just a specific example in a different part of my declaration talking about singular versus plural items, but I think it answers your question about the concept of 10:33:17
a data construct and how the data construct could be something that would involve multiple variables, multiple data variables, as it says in paragraph 58.

Q In your example in paragraph 88, is there a relationship between the play_now and play_next data 10:33:39

variables?

MR. LEE: Objection to form.

THE WITNESS: Again, I don't know what you mean by "relationship." So the example that's described here gives an instance of how these two variables could store data or store, in this case, the logic that is going to be populated by a multimedia item, which could be various things that I describe also in my declaration. And the code that implements this or the logic that uses the play_now and play_next data variables could use them in the way as described here. 10:33:56 10:34:18

I don't know how that corresponds to the phrase you use, "relationship."

BY MR. KAPLAN: 10:34:33

Q Well, presumably you could have two variables that, in your view, together do constitute a data construct, or in the alternative, you could have two variables that together do not constitute a data construct; is that fair? 10:34:49

A Again, without understanding the context, it's hard to know how to answer that question.

Q Are every two variables going to form a data construct, in your view?

A Again, without knowing -- without 10:35:05

understanding the context, it's hard to answer that question. I'm giving you a specific example here which are a pair of data variables that, as I described earlier in paragraph 58, would be an example of a data construct in this particular case relating to playback devices, having the ability to store in the memory multimedia items, plural.

Q Right.

What I'm trying to get at here is, I want to understand the basis for your opinion that allows you to identify when multiple independent variables will form a construct and when they won't.

Do you understand my question?

A I think so. I think I just gave you an example where two data variables are being used together with logic in order to perform some capability that could be useful in the context of a playback system that would form a data construct, as I describe in paragraph 58.

Q Can you give me an example of when two data variables would not form a data construct, in your view?

MR. LEE: Objection to form, incomplete, relevance.

THE WITNESS: I would have to think more

about it. In this case, I was looking for examples that demonstrated a data construct where multiple data variables could be used in the context of playback devices which, as I understand it, are the focus of the -- my claim construction declaration -- 10:36:55
one of the focal points of my claim construction declaration.

BY MR. KAPLAN:

Q So let me try to narrow the question and I'll see if that helps. 10:37:06

In the context of playback devices, can you give me an example of when you would have two variables that would not form a data construct, in your view?

MR. LEE: Objection to form, vague, 10:37:21
confusing, scope, relevance.

THE WITNESS: Yeah. I would have to think about that some more. It's outside the scope of what I've done here.

My analysis is focusing on the different 10:37:32
ways in which Google's construction of playback queue is overly narrow and, in fact, reads out a number of the different embodiments that are disclosed in the specification.

/// 10:38:10

BY MR. KAPLAN:

Q Okay. Can you give me an example in the context of playback devices where you would have a single variable that would not form a queue?

MR. LEE: Same objection; form, scope, relevance. 10:38:36

THE WITNESS: A single variable that would not form a queue?

MR. LEE: It's vague, confusing. I'm sorry. 10:38:52

THE WITNESS: A Boolean flag of some sort, perhaps. Keep in mind, I haven't done that particular analysis in my declaration, so I would have to think about it, but seems like some Boolean flag. 10:39:12

BY MR. KAPLAN:

Q So what I'm getting at here is, you've provided -- I think at least an example in the case where you have two variables where that might fit the data construct definition that you gave, right, that's paragraph 88? 10:39:27

A That's correct.

Q I just want to ask one more time to make sure that the answer is clear.

Sitting here today, you can't give me an 10:39:40

example of two variables in the playback device context that would not form a data construct; right?

MR. LEE: Objection to form, mischaracterizes, vague, confusing.

THE WITNESS: Yeah. I wouldn't -- I don't think that's what I answered you before when you asked the same question. 10:39:57

BY MR. KAPLAN:

Q Well, then, I would like your answer as to what is an example of two variables in a playback context that don't form a data construct? 10:40:08

MR. LEE: Objection to form, vague, incomplete, scope, relevance.

THE WITNESS: I just go back to the answer I gave you when you asked the question two or three minutes ago. 10:40:22

I don't remember exactly what the answer was, but I'm sure it's there for the record.

BY MR. KAPLAN:

Q I thought that the answer was that you couldn't give me an example, sitting here today, because you thought it was outside the scope of your declaration. 10:40:32

A I don't think that's quite what I said, but I stand by what I said before. 10:40:44

Q Well, I'm going to have to ask it again because I think we had different understandings of what your testimony was, so I'll ask it one more time.

Can you give me an example in the playback device context of two variables that together don't form a data construct? 10:40:55

A And I'll just give the same answer I gave before.

I believe I asked -- you asked me that question before and I think I gave you an answer that I stand behind, so you may have a different interpretation of what the answer is, but I believe my answer is my answer. 10:41:06

Q I don't know what your answer was. I didn't get an example and I don't think you said -- I don't recall an example, so can you answer it one more time, please? 10:41:24

MR. LEE: Objection to form, incomplete hypothetical, vague, confusing, relevance, beyond the scope. 10:41:36

THE WITNESS: Again, I'll just point back.

You asked me the question probably now four minutes ago and I gave you an answer at that time and I don't remember every detail of what I said, 10:41:48

but I think I answered your question.

So I'm just going to stick with what I said before, which should be in the record.

BY MR. KAPLAN:

Q Well, it's all in the record and I'm not trying to cross-examine you against your prior answer, both of those will be in the record, but I don't recall hearing an example like I asked for. 10:41:56

If you think you gave me one, I would like to hear that example again. 10:42:08

A I think my previous answer gave you the answer to your question.

Q Can you give me an example -- I'll ask it one more time and then we will move on. Okay?

Sitting here today, in the playback device context, can you give me an example of two variables that, together, don't form a data construct? 10:42:24

MR. LEE: Same objection; incomplete, vague, confusing, scope, relevance.

THE WITNESS: So again, I'll point you back to the response I gave you when you asked me that question the first time. I'm going to stay with that answer to your question. 10:42:41

BY MR. KAPLAN:

Q If you go to page 17 of your declaration. 10:43:32

I'm going to be looking at footnote 4.

A I see that.

Q Is it your view that Google's construction is unclear as to whether or not it covers user defined playlists? 10:44:02

MR. LEE: Objection to form.

THE WITNESS: Let me see the context in which that footnote appears.

So this footnote appears in the context of one of my other opinions that Google's proposed 10:44:44 construction appears to be given just a very narrow example of one potential embodiment, good embodiment, in my opinion, good potential embodiment, a playback queue, which, in my mind, appears to be more associated with what a person in 10:45:13 the ordinary skill in the art would be associated with being a user defined playlist rather than actually explaining what a playback queue is in the construction.

And so that's the context. That's the 10:45:23 sentence that appears towards the end of paragraph 47, and this footnote is just ripping on this a little further, talking about a topic that actually appears later in -- I think it's section D of my declaration -- where I'm saying it's not clear 10:45:42

to me as I read the proposed Google claim construction whether they're only intending for a playlist to be satisfied by a -- sorry -- a playback queue, not a playlist -- a playback queue to be satisfied by a user defined playlist, which is the way the construction appears to suggest because it says something about selected by the user for playback. That's the particular phrase that I'm addressing here. 10:46:03

And it appears to me that if that was the intent of Google's construction, it would exclude a number of different embodiments or examples that are explicitly described in the specification having to do with playing an album of songs, or a service defined playlist, or something as I say, actually, right above the footnote at the bottom of page 17 continuing on to the top of page 18 where you could have some kind of online disk jockey service that will decide what songs to play next, which really isn't the same thing as being something selected by the user, or a song selected by the user, or multimedia content selected by the user. 10:46:20 10:46:40 10:47:00

So that's the way in which I'm addressing this issue of selected by the user for playback. It just wasn't clear to me, given the construction put 10:47:15

forward what Google's intent was.

BY MR. KAPLAN:

Q In paragraph 49 of your declaration, you set forth an opinion that Google's proposed construction would exclude service defined playlists. 10:47:32

Do you see that?

A Well, I think I'm just describing what an example of a service defined playlist is, or an Internet radio station is in paragraph 49, as I read paragraph 49. 10:47:53

Q Do you have a critique of Google's construction that service defined playlists would be excluded improperly by Google's construction?

A I think as I mentioned in footnote 4, it's just not clear to me what Google's construction means, because the construction includes the phrase "selected by the user for playback," and that particular analysis of the playback queue not being limited to user selected content, unlike what it appears that Google may be saying, actually appears starting towards the bottom of page 31. 10:48:07 10:48:35

And as I say in paragraph 93 on page 32, it's unclear to me whether Google's use of the term "selected by the user for playback," it's not clear 10:48:59

to me whether Google intends that language to include queuing a list of media items curated by a third party media service, that's kind of a service provided approach, automatically queuing album songs by virtue of the user selecting the first song of an album. 10:49:17

And when I say other examples, having things related to queueing of other media items, or as we talked about before, some kind of disk jockey service. It's just not clear what Google means. 10:49:32

So I think my main critique, which continues on paragraph 93 and below, this is my understanding of my -- my not understanding of Google's phrase, because I don't understand what it means. 10:49:49

It appears that if it were to only be playback items that were multimedia that were selected by the user for playback, that would be inconsistent with a POSITA's understanding of the term "playback queue," as described in the two patents at issue. 10:50:04

Q Do you understand Google's proposed construction to require that the multimedia items are selected by the user for playback?

A I think the point I'm making, I don't 10:50:20

understand what Google means. It seems very unclear. So because it's unclear, I'm trying to provide an analysis of what it might mean and then describe why I believe that that analysis -- why that -- those meanings would be inconsistent with what's the intended part of the patents at issue. 10:50:40

Q Is it your understanding that the org list for the multimedia items are selected by playback -- strike that. I didn't correctly quote the construction. 10:50:59

So Google's proposed construction says:

"An order list of multimedia items is selected by the user for playback."

Do you see that? 10:51:10

A I see Google's proposed construction, yes.

Q Is it your understanding that the "is selected by the user for playback" refers to multimedia items, or an ordered list?

MR. LEE: Objection to form. 10:51:26

THE WITNESS: So if you take a look at paragraph 91 of my declaration, I say essentially it's my understanding that:

"Google's proposed construction for 'playback queue' 10:51:50

further requires that the 'ordered list of multimedia items' be 'selected by the user for playback.'"

BY MR. KAPLAN: 10:52:01

Q But Google's proposed construction uses the word "is," which refers to a singular subject as opposed to a plural subject.

So Google's construction is actually grammatically saying it's the ordered list that is 10:52:12 selected by the user for playback; right?

A Well, as I read it here, it's the ordered list of multimedia items.

Q And the ordered list is a singular subject; correct? 10:52:30

A Ordered list is a singular subject, but it's my understanding that the phrase "ordered list of multimedia items" is what Google's proposing be selected by the user for playback.

Q So under Google's proposed construction, 10:52:48 it's not the multimedia items themselves that are selected by the user for playback, it's the ordered list; right?

A I'm not really sure what distinction you're making here. When I read the analysis here in 10:53:08

section D of my declaration, I'm referring to the phrase "ordered list of multimedia items" as being what Google is proposing be selected by the user for playback.

Q Well, part of your critique -- I'm sorry. 10:53:26

Go ahead, Dr. Schmidt.

A And the analysis in section D of this part of my claim construction declaration is asking questions about what does that mean?

And it's not clear what that means, as I 10:53:42 describe here. It's not clear whether it excludes or includes queueing a playlist of media items, so I think leaving aside the whole issue of ordered, whether it has to be an ordered list, that's discussed in section C of my declaration. 10:54:01

But as I say in paragraph 93, it's not clear whether Google's construction excludes queueing a playlist of media items, or a playlist is singular, to your point, of media items that is curated, so there's the singular "is," by a third 10:54:19 party media service.

That's the part of the analysis here that I find confusing and unclear and it appears that it could very well be the case that Google's -- if that is the intent, that the playlist must be selected, 10:54:32

whether that's something that is -- it's not clear what Google is suggesting here and whether they're reading out things that appear to be intentionally part of the patents at issue.

Q If it's the playlist that's selected by the user, then falling under that would be examples like Pandora where a radio station is selected by the user; right? 10:54:51

A There's a bunch of different examples that I think occur in the patent of ways to get content play. 10:55:10

Q Pandora being one of them, I believe. Spotify is another example; correct?

A Let's see.

The patent gives several different examples of third party music applications, including Pandora, Rhapsody, Spotify, and so on. 10:55:34

Q And in the Pandora example for -- just taking that as a single example, you understand that for a user to use Pandora, he or she selects a radio station which is associated with a service defined playlist; right? 10:55:52

A That's my understanding.

Q And in that example, the user is not actually identifying and selecting all of the songs 10:56:08

or multimedia items within that radio station, the service is identifying them in playing those; right?

A Again, that's my understanding.

Q Let's turn to paragraph 51 of your declaration. 10:56:34

A Okay.

MR. KAPLAN: I'm going to introduce another exhibit. Please let me know when you have it up.

THE REPORTER: Is this Exhibit 4?

MR. KAPLAN: This is Exhibit 4. And it will be United States Patent application number U.S. 2011/4330. 10:57:14

(Whereupon, Google Exhibit 4 was marked for identification by the Court Reporter.) 10:57:56

MR. LEE: Don't worry about the dogs. I know Mike has at least two sitting there.

THE REPORTER: Sorry.

MR. LEE: It's not a problem at all.

THE WITNESS: Okay. I got it. 10:58:07

BY MR. KAPLAN:

Q Can you turn to paragraph 51 of that reference. I apologize.

Can you turn to paragraph 48 of that reference. 10:58:28

A I'm there.
Q There's a sentence within that paragraph that begins:
"When the decision 316 determines that the specified media item is to be played back next, the specified media item can be added 318 to a top of a playback queue. Alternatively, when the decision 316 determines that the specified media item is not to be played back next, the specified media item can be added 320 to a bottom of the playback queue." 10:58:42 10:58:54 10:59:07
Do you see that?
A I do.
Q This portion of the reference is describing how media items can be added or removed from a queue? 10:59:16
A No.
Q Why not?
A I don't see anything in that -- in the line you read to me that describes removing an item.
Q Fair enough. 10:59:54

This portion of the record is just describing adding items to a queue; is that fair?

A The reference says what it says. It says that the -- in this particular context, it talks about how an item can be added to the top of a playback queue or added to the bottom of a playback queue. I see that. 11:00:12

Q What does that mean, "top of a playback queue"?

A I would have to read further to see what they're referring to by "playback queue" here to see what they mean. 11:00:23

Q Would a person of art understand what the top or bottom of a queue refers to?

While you think about it, let me ask a slightly better question that actually makes sense. 11:00:58

Would a person of skill in the art understand what the top or bottom of a queue refers to, "Q-U-E-U"...

A It depends on the context. 11:01:11

Q Do you understand what adding a media item to the top or bottom of a queue means?

A That's what I'm looking for, to see how it's being used in this particular patent description and how it's defined. 11:01:31

Again, I'm trying to see if there's a definition of how queue is defined here.

Q So can you answer my question without finding the definition on the patent, or not?

A Well, depending on the context in which queue is used, top and bottom are not common terms used to describe queues. That's why I was trying to see if they were defining it in some other way. 11:02:57

Q What terms are used to describe the front and end of a queue, typically? 11:03:13

A Again, it depends on the context in which we're referring.

Q How about in the playback device context?

A Typically people -- well, again, it's hard to say. If you think about a queue, queues can mean many different things. As I describe in my report on paragraph 47, a queue is -- a playback queue is a container that can be used to pull multimedia for playback and different types and arrangements of multimedia could be queued. So what that's really saying is, there's different ways to understand what a queue could be. 11:03:35 11:04:03

So I don't know if there's -- I don't think there's really one dictionary definition of a playback queue that would be appropriate for all 11:04:13

context, and that's why I describe here in paragraph 47 and later in paragraphs 58 and 59, how I believe a person of ordinary skill in the art would have understood playback queue to be interpreted in the context of this patent. 11:04:31

How the other patent -- that's why I was trying to see how they're giving definition of a playback queue, and they may be defining it in some more specific way.

Q Have you ever heard of queues described as having a first-in/first-out characteristic? 11:04:48

A Queues can be organized in all kinds of different ways, so that's one potential way of organizing, but there's lots of other ways to organize queues as well. 11:05:03

Q Have you ever programmed using queues that have a first-in/first-out characteristic?

A I have.

Q In what context -- strike that.

Have you ever taught in any of your classes at Vanderbilt University that queues might have a first-in/first-out characteristic? 11:05:14

A I have taught queues in a number of different ways. Typically when I talk about queues, I talk about them being able to have different 11:05:32

queuing disciplines or queuing protocols, if you will, and some of the queuing protocols would include things like last-in/first-out; other protocols are first-in/first-out.

There are other protocols where queues are organized in terms of so-called priority order. There's other protocols where you can move elements around in a queue. There's other protocols that do other things where you can add or remove items from the beginning and end. You can then add them from the -- you can add or remove them from the beginning or add or remove them from the end. 11:05:48 11:06:04

There's a number of different ways to teach what queues do.

Q Have you taught that queues don't need to have an order? 11:06:16

A Again, there's different ways to organize queues. Yes, there are certainly queues that do not have an order from the point of view from the way the user is going to access their contents. 11:06:32

Q What's an example of a queue that doesn't have an order?

A A queue that would provide the elements in a random sequence.

Q Would the queue be stored in the computer 11:06:44

or memory with an order?

MR. LEE: Objection; form, foundation.

THE WITNESS: I'm not sure what you mean by "order."

BY MR. KAPLAN: 11:07:02

Q So I think you were saying that a user might access the elements of a queue in a random order.

Did I get that right?

A I think I said a random sequence. 11:07:13

Q Fair enough.

The user may access the elements of a queue in a random sequence according to you; right?

A That's correct.

Q Would the queue as it's stored in the computer have an order? 11:07:23

MR. LEE: Objection to form, vague, confusing, incomplete.

THE WITNESS: Again, it's not clear what you mean by "order." 11:07:40

BY MR. KAPLAN:

Q So you -- have you heard of people describing queues as having an order?

A It is possible for queues to have order; although not every queue needs to be ordered. 11:07:52

Q What is an example of a queue that's not ordered?

A A queue where the elements are accessed randomly.

Q What is an example of a queue that's -- well, let me ask a better question. 11:08:07

What is an example of a queue where the elements can only be accessed randomly?

MR. LEE: Objection to the form.

THE WITNESS: A random queue. 11:08:25

Are you asking for what's an application of such a thing?

BY MR. KAPLAN:

Q Well, I'm not sure I understand what you mean by "random queue." 11:08:37

Can you describe that a bit more?

A Sure.

You could have some collection of elements and you might want to select the elements in some random order, so it -- there could be lots of 11:08:54 different reasons for doing this.

You might want to do this for some kind of encryption purposes, or you might want to do this for some kind of testing purposes. You might want to be able to see how different kinds of algorithms 11:09:07

might behave when confronted with data that's in random order, literally.

For example, certain algorithms behave very well on data that's nearly sorted. They perform differently on data that's randomly sorted, or not sorted at all. Randomly -- just randomly -- values that come in random ways. 11:09:22

And so the ability to be able to take some collection of values and provide those values in some order that's not predefined but is, in fact, going to be accessed based on a random number generator is not uncommon. 11:09:41

I do that all the time when I'm demonstrating various capabilities in courses I teach at Vanderbilt and elsewhere. So that would be an example of a way to take a collection of data, a queue of data, and access it in a random order. 11:09:58

Q Are the elements within that queue connected to the other elements within that queue randomly? 11:10:17

MR. LEE: Objection to the form, vague.

THE WITNESS: I'm not sure what you mean by "randomly."

BY MR. KAPLAN:

Q Are the elements stored in the queue in an 11:10:28

order in your random queue example?

MR. LEE: Objection to the form.

THE WITNESS: Not necessarily, no. Because they could move around. In fact, in many implementations of these forms of data algorithms and data constructs and data structures and so on, they -- doesn't really matter what order they're stored in, you're going to be accessing them in random order or random sequence. 11:10:41

BY MR. KAPLAN: 11:10:59

Q The random order or random sequence, are you removing elements from the queue that are not at the front or at the end of the queue?

MR. LEE: Objection to form, vague, incomplete. 11:11:11

THE WITNESS: In fact, there's many different implementations of the style of data generation I'm describing here. Some remove elements; some don't remove elements.

The key issue here is that you're accessing each element in -- that's queued up in a manner that is going to produce random output. And whether or not something is removed or not is really an implementation detail of how you would implement that particular abstraction. 11:11:23 11:11:40

BY MR. KAPLAN:

Q In the random queue that you're describing, are elements added to the queue randomly in order to randomize it?

A Again. 11:11:55

MR. LEE: Objection to the form, incomplete hypothetical, vague.

THE WITNESS: There's various ways to implement these kind of techniques. Some of the ways would add the elements in some order and then 11:12:05 access them randomly; others would add them randomly and access them randomly. You could add them randomly and access sequentially. There's all different ways to implement these kinds of data abstracts. 11:12:21

BY MR. KAPLAN:

Q In your view, what are the characteristics of a queue?

A Well, again, in what context?

Q A playback device context. 11:12:32

A So in the playback device context, as I describe in paragraph 47 of my declaration, a queue is a container that can hold multimedia or resource locators to multimedia items for playback and have different types and arrangements of multimedia data 11:12:53

that could be queued up, such as single songs or playlist and so on.

Later I go into more detail in the context of how a POSITA would understand a playback queue to be realized in the context of the patents at issue in the case which appear in paragraphs 58 and 59. 11:13:08

Q In your view, the queue can be a single data variable; right?

MR. LEE: Objection.

THE WITNESS: Certainly, yes. 11:13:29

BY MR. KAPLAN:

Q And in your view, the queue can be multiple data variables; right?

A As described on paragraph 58 in my report, I mention that POSITA at the time of the invention would have understood that a queue could be implemented in different ways, taking different forms, such as a data construct, like a single data variable, multiple data variables, DataRay, and there's obviously other ways to do it as well. 11:13:42 11:13:58

Q What ways can a queue not be constructed?

MR. LEE: Objection to form.

THE WITNESS: There's infinite ways which a queue cannot be constructed.

/// 11:14:15

BY MR. KAPLAN:

Q If you were trying to hold multiple pieces of data, for example, songs, how would you store those in some type of data structure that's not a queue? 11:14:26

MR. LEE: Objection to form, vague, incomplete hypothetical, foundation.

THE WITNESS: I mean, you could certainly store anything in a way that would not be accessible in the manner that is being described here in the 11:14:56 patents at issue.

BY MR. KAPLAN:

Q What do you mean by that?

A You could store -- you asked me, are there ways to implement something that are not a queue. 11:15:07

You could store data in a way that had no way to access the elements at all.

Q Besides not being able to access the elements at all, what are the ways that you could store data, for example, songs, not in a queue? 11:15:20

MR. LEE: Objection to form, foundation, scope.

THE WITNESS: I would have to spend more time thinking about that. I haven't prepared that analysis for today. I have to think about it some 11:15:36

more.

BY MR. KAPLAN:

Q Okay. Let's move on to paragraph 52.

Let me know when you're there.

A I'm there. 11:16:01

MR. KAPLAN: This requires me to get another reference. Give me one moment.

I've introduced Exhibit 5.

(Whereupon, Google Exhibit 5 was marked for identification by the 11:16:34
Court Reporter.)

BY MR. KAPLAN:

Q Please let me know when you see it, Dr. Schmidt.

Exhibit 5 will be United States patent 11:16:38
application number 2012/89910.

A Okay. I'm there.

Q Can you go to paragraph 50 of Exhibit 5 and let me know when you're there.

A I'm there. 11:17:42

Q If you could read the portion to yourself, Dr. Schmidt, that begins "Selecting the play_next button 524 causes playback."

(Document reviewed by the witness.)

THE WITNESS: Okay. I see that. 11:18:18

BY MR. KAPLAN:

Q And did you read through the rest of paragraph 50?

A Oh, no. Sorry. I just read that sentence. I'll read the rest of it. 11:18:28

Q Thank you.

(Document reviewed by the witness.)

MR. KAPLAN: It seemed too quick.

THE WITNESS: Okay. I see that. I've read it. Sorry. 11:19:04

BY MR. KAPLAN:

Q In the second sentence that you just read, the specification here refers to:

"Placing the selected media items at the front of the playback queue." 11:19:18

Do you know what "front of the playback queue" refers to?

MR. LEE: Objection; form, foundation.

THE WITNESS: Again, I would have to go back and see more how they're describing what a playback queue is in this context. 11:19:46

I think the main purpose of this reference was just to point out that queues can have zero items. They can have one item, they can have more 11:20:01

than one item. There's no requirement that a queue has to hold multiple items, which appears to be what the construction has for -- from Google.

BY MR. KAPLAN:

Q Do you see in the portion you just read, the specification also describes appending tracks to the end of the existing playback queue? 11:20:19

Do you see that?

I'm paraphrasing.

A No, I don't see. 11:20:40

Where is that located?

Q The sentence that begins:

"Selecting the Append to Queue button 526 causes the one or more selected tracks to be added to the end of an existing playback queue." 11:21:05

Do you see that?

A I do.

Q The fact that the queue has a -- strike that. 11:21:18

Does the fact that the queue that they're discussing here in this specification have a front and an end indicate to you that this queue is ordered? 11:21:29

MR. LEE: Objection to form, foundation.

THE WITNESS: Again, I need to go and look more carefully how they're defining the data structures or if they're defining the data structures that they're calling a playback queue in this context. 11:21:45

BY MR. KAPLAN:

Q If you want to take a moment, you can do that.

MR. LEE: Caution the witness to be thorough in reviewing the document. 11:22:10

THE WITNESS: So I looked through all the references to playback queue in the specification that I could search for, or that came up when I searched for "playback queue," and as far as I can tell, they don't disclose the structure of the queue. 11:24:42

But I will mention that the specification makes it very clear that a playback queue can be empty and it also mentions that playback queue can contain one element, which in my mind is, again, as I mention in my declaration, inconsistent with Google's proposed construction that says that a queue must be an ordered list of multimedia items, implying that there's more than one of them. 11:24:54 11:25:14

And, therefore, as I say in my report towards the end of paragraph 76 -- or my declaration, sorry, that the definition that the proposal for the construction that Google is putting forth would appear to not count a queue having zero or one elements as being part of the construction of playback queue. 11:25:33

So I think that this reference here that I just looked through would be further indication of the inconsistency that Google has with -- Google's proposed construction has with other extrinsic evidence at the time. 11:25:50

BY MR. KAPLAN:

Q In your view, can a queue be a list?

MR. LEE: Objection to form, vague. 11:26:08

THE WITNESS: There's many different ways to implement queues. You can implement queues as raised contiguous data structures. You can implement queues as linked lists. You can implement queues as trees. You can implement queues as hash tables. You can implement queues as file systems. You can implement queues, as I describe in my declaration, in using other data constructs, such as multiple data variables or single data variable. There's different ways to implement queues. 11:26:22 11:26:40

BY MR. KAPLAN:

Q Some of those ways involve lists; right?

A Again, depending on how list is defined, there's different kinds of lists. So I think that's a case where certain terms are used broadly that probably need to be narrowed down or we have to recognize, as I mention in my report, that the implementation of the queue container data construct can take many different forms and so there's no one representation. 11:26:56 11:27:16

I think one of the big issues I have with Google's proposed construction is it tries to narrow the understanding of a playback queue to something that looks a lot more like a user defined playlist or user specified playlist as opposed to being how I think the term "playback queue" is actually described in the patents at issue. 11:27:30

So the instruction is just very, very narrow, overly narrow. It's reading a particular implementation detail in a way that's not representative of what a POSITA would understand the queue to be, and by doing so, it's also excluding a number of different embodiments that are put forth explicitly in the specification of the patents. 11:27:43

Q Let's say you have a queue that's an order 11:28:01

list of three items.

Do you follow me so far?

A Okay.

Q And you remove two of those items from your queue. 11:28:13

Follow me so far?

A Okay.

Q Is what's remaining an ordered list, or not?

MR. LEE: Objection to the form, incomplete hypothetical, foundation. 11:28:23

THE WITNESS: Again, we have to define what an "ordered list" means. So that's something also that's not really clear from Google's construction, what is meant by an ordered list. 11:28:41

Ordered according to what?

A list. It's just a lot -- I guess my main issue here is that the construction that Google is putting forth is inherently ambiguous because terms like "ordered list" are not really defined. 11:28:58

And to the extent that they're narrowed down to be given a definition, then the construction that's put forth is overly narrow and it starts excluding various capabilities that are disclosed in the '615 and '033 patents. 11:29:16

BY MR. KAPLAN:

Q I'm trying to ask a narrower question here, which is -- I think we agree that you can have an order list that could be an example of a queue and then you can remove items from that queue until you get down to one or zero items left in the queue. 11:29:32

Are you with me so far?

A I understand what you said so far, yes.

Q And my question is: Does the queue stop being an ordered list, as soon as you get down to having one or zero items left in the queue, or not? 11:29:52

MR. LEE: Objection to form, vague, ambiguous.

THE WITNESS: Again, it's not really clear from your hypothetical when you say "ordered list," what that means. It's also not really clear, you can -- there's a concept of something being vacuously true. 11:30:06

So is something -- is the data structure that's empty, a data structure? 11:30:23

It depends how you want to define that or a data construct.

I think the main issue for me is that the way in which Google is defining the construction using terms like "ordered list of multimedia items" 11:30:37

is vague and overly narrow and reads out things that are part explicitly anticipated and disclosed in the specification. That's the key part for my analysis.

BY MR. KAPLAN:

Q Is the fact that Google's construction uses the term "ordered list" incorrect because a queue can have zero or one items in it? 11:30:55

MR. LEE: Objection to form.

THE WITNESS: The problem with -- well, let's see. I think I describe that. 11:31:13

I think this is in section C.

Let's see. Let me just make sure.

So as I describe on paragraph 87 of my declaration, leaving aside whether we're dealing with one or more items, it's my opinion that a POSITA at the time of the invention would have known that an ordered list was not necessary in order to implement a playback queue. 11:31:43

And really as I describe several other places, such as paragraph 47 and paragraphs 48 and 49, a playback queue is really about a container that holds the element or elements or no elements, for that matter, to be played back rather than a particular data structure organized in a particular way. 11:32:01 11:32:23

And to the key point, I think this is really getting square on to your question about ordered list, a POSITA would have understood, as people note in general who understand computing and data management, that there's lots of different ways 11:32:38
to implement something like a playback queue that can take different forms, different implementation approaches, different ways of realizing the concept of a playback queue.

And an ordered list might be one of those 11:32:54
ways, but it's not necessarily the best way to do it. Certainly not the only way to do it.

And so using a construction that predefines a particular implementation detail for a construct that doesn't require that level of detail to 11:33:08
represent what a playback queue does in the context of these patents is just overly narrow and restrictive.

BY MR. KAPLAN:

Q I would like you to focus on my question 11:33:19
because it's a bit narrower than the answer you just gave.

My question is: Is the fact that Google's construction uses the term "ordered list" incorrect because a queue can have zero or one items in it? 11:33:32

A Well, again, as described in section C, I break this up into two parts: One is zero or more items or zero or one items, or zero, one or two or more items. That's one aspect.

The ordered list part, though, as I think I just described, was incorrect not so much because of the plurality of multimedia items part of ordered list of multimedia items, that's a different analysis. 11:33:51

But the ordered list is problematic because a POSITA would have known, as I say here in paragraphs -- in paragraph 88 -- sorry -- 87, that there are different ways to implement a queue or a playback queue because that's really what's doing here is a playback queue, and that an ordered list is not the essence of what it means to be a playback queue. 11:34:07 11:34:27

So that's the reason why that's problematic. It has to do with that.

And paragraph 88 gives an example that we talked about earlier how you could implement a playback queue that is not an ordered list, but that satisfies the playback queue nature of what's required by the patents. 11:34:37

Q In your example on paragraph 88 with 11:34:52

play_now and play_next, do those variables have an order?

A The variables do not have an order, no.

Q And the variables do not need to have an order in your view to qualify as a queue; right? 11:35:07

MR. LEE: Objection to the form.

THE WITNESS: So I think I describe it pretty succinctly in paragraph 88 how you can have data variables that are not stored as an ordered list, as it says here, and, yet, still be able to 11:35:29 play back the media in a specified order.

So it describes how you could have the logic of the code play things back such that play_now goes first followed by play_next which goes next. And the actual data variables that are part 11:35:45 of the data construct need not to have any order and we still get the right affect that would be desired for that particular implementation.

BY MR. KAPLAN:

Q We talked about random queues in the past 11:35:59 prior in this deposition.

Would it be your opinion that if you randomly played the data variable play_now and the random -- and randomly played -- strike that.

Let me try to ask a better question. 11:36:16

Would it be your opinion modifying your example in paragraph 88 with play_now and play_next, if you played those data variables in a random order, that it would still constitute a queue?

A Well, I think a good example of that would be the shuffle feature that you often find in playback devices where the elements in your playback queue could be played back in whatever order is deemed by the particular device to be shuffled. 11:36:31

In other words, not an order that a user might necessarily anticipate wouldn't be the first track of the album followed by the second track of the album followed by the third track of the album or whatever, be an album or playlist, but it would be shuffled. 11:36:50 11:37:05

So in that particular case, in this case, we have a playback queue with two elements in it and we could put it in shuffle mode and I think that would be actually a very common way of being able to use playback devices if you get tired of hearing songs in the same order. 11:37:18

Q If we modified your example in paragraph 88, which has play_now and play_next, to remove play_next, would you still have a queue?

A I think as described in other parts of my 11:37:33

declaration, the '615 and '033 patents make it very clear that you can have playback queues that play a song.

So there's a number of discussions, that's actually the whole part about -- that's the whole 11:37:50
part in section C starting on paragraph 76 where it's -- there's no reason to think that you have to have multiple items in the playback queue in order for it to still be in playback queue.

I have a bunch of different citations where 11:38:07
it describes being able to play a song or something that's singular and that representation, the implementation -- or realization of that, probably a better term, of that capability is still done with the playback queue, just has one item in it. 11:38:22

Q So the answer to my question was yes; correct?

MR. LEE: Objection to form.

THE WITNESS: I think as I say in
paragraph 88, the '615 Patent and by extension, the 11:38:39
'033 Patent repeatedly describes queueing only a single piece of multimedia content for playback which would mean that the playback queue would only contain a single resource locator that corresponds to or indicates a single piece of multimedia 11:38:58

content.

So in that particular case, it's certainly plausible to have a single data variable be used to store the content in the playback queue, which is the single piece of media that's disclosed in the patent specifications. 11:39:14

BY MR. KAPLAN:

Q So in your example, if you just had the play_now variable, that could still be a queue; right? 11:39:34

MR. LEE: Objection to form.

THE WITNESS: Again, as I say in this part of the report, for example, on paragraph 82, I see nothing in the claims of these patents, or in the specification of the patents, that limits the playback queue to something that has to contain a plurality or plural multimedia items. 11:39:54

It could have just a single item, in which case you could have a single data variable, as I think I mention in paragraph 47, as well, as various ways that the concept of a playback queue container could be realized. 11:40:10

BY MR. KAPLAN:

Q So I've asked you a specific question about your example in paragraph 88, three times now. I'm 11:40:22

going to ask it one more time.

Taking your example in paragraph 88, which has the play_now and play_next data variables, if we took out the play_next data variable, would you still have a queue? 11:40:37

A I think I've answered that question three times by pointing out that I see nothing in the specification or the claims in these patents that require the playback queue to have multiple, multiple items in it. 11:40:55

And the particular example on paragraph 88 is demonstrating how you could play things back in a particular order without requiring an ordered list. So that's the particular scenario.

But generalizing from the earlier discussions that I've given you those answers to your questions before, since the patent spec and the patent claims don't require the -- having more than one item, then you could have a queue that had an item -- had a single data variable. I think I've been consistent in saying that. 11:41:11 11:41:33

Q Right. I'm not sure why you're fighting this question so hard.

You gave an example in your declaration. I'm asking about a very, very simple modification 11:41:45

and I don't know why you're not answering my question with respect to if you removed the play_next variable in your example in paragraph 88, yes or no whether you would have a queue still?

MR. LEE: Objection to form, asked and answered. 11:42:02

THE WITNESS: Yeah. I think I've given you the same answer each time.

So as I mentioned, as I say in paragraph 83, there's nothing in the specification that requires there to be multiple items, plural. You could have a single item. 11:42:13

The example that's in paragraph 88 is illustrating a slightly different point, which is that you can have ordered behavior without requiring the use of an ordered list. 11:42:28

If you remove one of the variables and you have a single variable, you know, then assuming the example would need to be modified perhaps, the description of the example in paragraph 88 would have to be tweaked a little bit because it's really describing something slightly different in terms of the use case. 11:42:43

But I thought the answer I gave to your question multiple times was: It's certainly 11:42:52

possible to have a playback queue that has a single data variable in it. I think that's said consistently throughout my declaration.

As far as what would be -- need to be changed in paragraph 88, I would have to look more carefully because it's being used for a slightly different purpose. 11:43:07

But I think the bigger answer to your question is, as far as I see, the specifications and the claims for the two patents at issue in the case, it's possible to have a data construct, which is a single variable, be an implementation of a playback queue. 11:43:20

BY MR. KAPLAN:

Q Let's turn to paragraph 59 of your report. 11:43:34

A Okay. I'm there.

Q Do you see two and three lines from the bottom of paragraph 59 you describe media items?

Do you see that?

A I do. 11:44:05

Q What did you mean by "media items"?

A Are you referring to the thing that says:

"That can contain data identifying one or more media items (e.g. one or more resource 11:44:23

locators)"?

Q You use "media items" there and also in the following line. I'm referring to both places.

A So in this case -- let's see.

MR. LEE: Marc, we've been going an hour-and-a-half and it seems like we're switching gears as Doug looks. 11:45:03

Is this okay to take a break, lunch break?

MR. KAPLAN: I prefer to get on to my pending question, but then I'm happy to take a break. 11:45:15

MR. LEE: Okay. That's good.

Are you thinking lunch now or press on?

MR. KAPLAN: Up to you and the witness. And, of course, the court reporter and videographer. 11:45:26

MR. LEE: I could -- it's almost 2:00 o'clock for me, but that's fine.

THE WITNESS: So my understanding of -- or what I meant by "media items" in this context would be something akin to media content, for example, audio files as we described before that could be identified by or associated with resource locators -- one or more resource locators. 11:45:51

MR. KAPLAN: Let's go off the record.

THE VIDEOGRAPHER: We're off the record 11:46:18

11:46 a.m.

(Whereupon, a lunch recess was held from 11:46 a.m. to 12:20 p.m.)

THE VIDEOGRAPHER: We're on the record at 12:20 p.m. 12:20:24

BY MR. KAPLAN:

Q Welcome back, Dr. Schmidt.

You understand that you're still under oath?

A I do. 12:20:38

Q Let's turn to paragraph 100 of your declaration.

A I'm there.

Q In the sentence beginning, "Notably in this paragraph," you say that a POSITA would understand 12:20:59 that a URL is so limited to having an address.

Do you see that?

A I -- is it the part that says, "Whereas a POSITA would understand a URL is not so limited"; is that what you're referring to? 12:21:18

Q Correct.

A I see that, yes.

Q Can you give me an example of a URL that doesn't have an address?

A Yes. 12:21:29

Q Go ahead.

A A so-called persistence -- or persistent URL -- sorry -- persistent Uniform Resource Locator, or PURL, P-U-R-L, would be an example of a URL that does not contain the address of the resource that's being requested. 12:21:46

Q How does a PURL identify a resource?

A It provides information that is sent to essentially the lookup service or a resolution service that then goes ahead and finds where the actual resource is and then sends back what's called a URL redirect back to the requester that will redirect the requester back to the actual item that's being requested. 12:22:06

So you can think of it essentially as some sort of proxy, or like I said, a location service or directory service where you look things up and it doesn't actually contain the address of the resource, it contains something that can be used by the persistent URL service to identify the resource. 12:22:25 12:22:44

Q Will you turn to paragraph 103 of your report. Paragraph 103.

A I'm there.

Q In this paragraph, you excerpt a few different portions of the '615 Patent specification. 12:23:08

Do you see that?

A I do.

Q Are any of those portions of the specification referencing resource locators?

A If I understand your question, you're referring to the portions that are from the '615 Patent that starts at the very first indented paragraph on page 35 where it's talking about uniform resource indicator. 12:23:27

And then shortly thereafter, it's talking about how an application has the song identifier, which is another quote from the '615 spec, and then shortly below there it talks about an identifier for a single track and so on. 12:24:25

Are those the paragraphs that you're referring to that are excerpts from spec? 12:24:40

Q That's right.

A Right.

So all of those things, as I say here in paragraph 104, right underneath that: 12:24:50

"It is my opinion that a POSITA would understand from reading the '615 Patent that the 'resource locator'" -- that's in the claims -- "is meant to 12:25:02

encompass more than a 'URL,' as evidenced by at least the '615 Patent references to" -- and then I talk about -- "'some other identification,' 'identifier,' and 'information,'" and so on. 12:25:12

And these are the kinds of things that are described above: Song identifier, identifier, Uniform Resource Locator. Those are examples -- those are all examples given in the specification of resource locators demonstrating to my bigger point here in this section that resource locator is a different broader concept than a so-called Uniform Resource Locator. 12:25:24

Q Is it your opinion that PURLs are used to identify resources in the Cloud? 12:25:43

MR. LEE: Objection; form, foundation.

THE WITNESS: I'm sorry. Could you repeat the question?

BY MR. KAPLAN: 12:26:03

Q Is it your opinion that PURLs are used to identify resources in the Cloud?

A PURLs can be used to identify resources in a number of different locations or different contacts. The Cloud could certainly be used as one 12:26:17

of them.

Q Are URLs used to identify resources in the Cloud?

MR. LEE: Objection to form.

THE WITNESS: So just to be clear, when we say "the Cloud," we're referring broadly to Cloud services provided by Cloud providers; is that correct? 12:26:31

BY MR. KAPLAN:

Q That's fine. 12:26:46

A So uniform resources -- Uniform Resource Locators, or URLs, are one of a number of different naming regimes that can be used to identify resources in the Cloud.

Q What are the other naming regimes that can be used to identify resources in the Cloud? 12:27:03

A Oh, there's all kinds of things.

A good example from the world of the common object request broker architecture, technology standards and specifications and implementations, which began in the mid 1990s continuing on to today would be something called an object reference, which is another way of being able to locate resources in the Cloud. 12:27:19

Other technologies over time, such as 12:27:33

the -- Microsoft's COM mechanism and D-COMM mechanism used something called a moniker, which is another way of being able to identify resources that are existing in servers or Clouds, or basically different ways of being able to access information across the Internet or the World Wide Web. 12:27:52

There's also other concepts that have been used over the years, such as the mechanisms you would find in the data distribution service, which I think uses a resource -- an object reference like model to identify resources in distributed systems and networks and clouds. 12:28:07

There's also things such as universal unique IDs, UIDs, global unique IDs, GO IDs. All kinds of different ways to be able to identify resources in Clouds and other distributed systems. 12:28:25

So URL is just one of a number of different techniques that are used in order to identify such resources.

Q Do each of the examples you just gave identify location? 12:28:37

MR. LEE: Objection to form.

THE WITNESS: So that's a great question.

So kind of going back to the concept of a persistent URL, with CORBAs object references, you 12:28:49

can use object references in a couple different ways.

One way to use an object reference is to identify a particular resource in a distributed system or in a Cloud. That would be one where the address information is actually encoded in the object reference. 12:29:04

As with persistent URLs, however, you can also have object references that didn't point to a particular resource but they pointed to some kind of naming service or directory service or locator service or whatnot, and that would then find the resource of interest, redirect -- send a redirect message back to the client, called location forwarding response, and then that would cause the client to redirect the call to the actual resource. 12:29:17 12:29:34

Very, very much along the same lines of how a persistent URL works.

So these concepts of distributed location and distributed naming and so on have been around for decades. 12:29:47

BY MR. KAPLAN:

Q How would you implement a system that can playback multiple songs without using a queue?

MR. LEE: Objection to the form, 12:29:58

incomplete, vague, foundation.

THE WITNESS: How could -- I'm not sure I understand the question.

BY MR. KAPLAN:

Q Do you have a playback system that can playback multiple songs? 12:30:13

Is it possible to implement that without using a queue?

MR. LEE: Same objection.

THE WITNESS: Probably. I haven't really thought about it very hard, but it's probably doable. I'm not sure. I don't know -- quite know the context in which you're asking the question. 12:30:29

But it could be possible. I don't really know. I haven't done the analysis to think that through. 12:30:41

BY MR. KAPLAN:

Q Do you have any examples that you can think of on how to implement such a system without using a queue? 12:30:50

A I would have to think about it. I don't know off the top of my head.

Q Is Sonos's own music queue a playback queue?

MR. LEE: Objection to form, foundation. 12:31:06

I don't know if he's looked at Sonos's systems.

THE WITNESS: Yeah. I'm not really familiar with the details of how Sonos works.

I'm also not sure if there's one queue or I'm not sure if there's -- without the Sonos queue, I don't know if the products have different ways of implementing the queues, much like disclosed in the patents, there's different ways of implementing playback queues, so I'm not familiar with how those worked. 12:31:22 12:31:35

BY MR. KAPLAN:

Q Have you ever used Sonos products to play music from a queue?

MR. LEE: Objection; relevance. 12:31:44

THE WITNESS: I've used Sonos's products before, but I'm not sure the way in which I used them, whether I used the queue or not. I didn't look at the internals of how they were set up to be configured. 12:32:06

BY MR. KAPLAN:

Q Would you have to look at the internals of how they're set up to be configured to determine whether or not they used a queue?

MR. LEE: Objection; form, hypothetical. 12:32:14

THE WITNESS: Like I said, I'm not -- I don't remember enough about the context in which I used them in order to form an opinion on that or not.

BY MR. KAPLAN: 12:32:27

Q How did you use the Sonos products?

A My son has some Sonos speakers and he has shown me how to use them, but I don't recall the details of how he did it.

Q Do you recall if you played more than one song on the Sonos speakers that you used? 12:32:48

A No.

Q Did you cite any technical dictionaries that define the term "resource locator" by itself?

A As I say on paragraph 99 in my claim construction declaration, the opinions that I put forth are based on my analysis of the intrinsic and extrinsic evidence of the '615 Patent as cited below. 12:33:23

My own experience is -- and my determination of how the POSITA would understand -- would have understood the term "resource locator" in the context of the '615 Patent at the time of the invention. 12:33:39

And looking through the list of intrinsic 12:33:49

and extrinsic evidence that I cite here, I do not have dictionary definitions I cite to, intrinsic evidence and also extrinsic evidence in the form of other, I believe mostly, other patents from the general timeframe of the invention that used the word "resource locator" -- or the phrase "resource locator." 12:34:11

Q Let's say when a user transfers playback from their computing device to the playback device that they have an Internet server that sends the playback device a list of media items and those are going to be played back in some order on the playback device. 12:34:38

Do you understand the hypothetical so far?

A Sort of. So -- 12:34:54

Q Sure.

Under your constructions, do you think that the Internet server is adding identifiers to a local playback queue?

MR. LEE: Objection to the form, incomplete hypothetical, foundation. 12:35:09

THE WITNESS: Wow. I would have to take a look -- I mean, to do a proper analysis, I really have to spend some time looking through the means by which the information was requested and received and 12:35:29

so on to answer that question properly.

MR. LEE: Are you asking if that's the only way that that could work, Marc?

MR. KAPLAN: My question was under Dr. Schmidt's constructions, would he agree that the Internet server's adding identifiers to a local playback queue. 12:35:44

MR. LEE: Yeah.

Objection; vague and ambiguous, relevance, foundation. 12:35:58

BY MR. KAPLAN:

Q Under your constructions, Dr. Schmidt, would you agree that the Internet server's adding resource locators to a local playback queue?

MR. LEE: Objection; vague. 12:36:10

I don't even know what construction we're talking about.

THE WITNESS: So I will answer the question by reference to section B in -- subsection B in section 7 of my report which talks about issues related to what a playback queue might or might not contain with respect to multimedia items, whether or not they would be in so-called data form or identifier resource locator form. 12:36:34

And as I say throughout that section, 12:36:54

there's different ways to implement such a mechanism and -- or such mechanisms, and so I'd have to know a little bit more in your hypothetical about what we're referring to here is and how it's being used and specifically what you mean by my construction. 12:37:15

BY MR. KAPLAN:

Q So to answer the last question, the construction -- when I said "my construction," I meant the construction that you agreed with in your declaration, which is Sonos's construction. 12:37:25

A Okay.

MR. LEE: Same objection.

Still not sure what construction.

BY MR. KAPLAN:

Q Well, I want to make sure it's clear. 12:37:37

Dr. Schmidt, do you understand which constructions I'm referring to?

MR. LEE: Objection to Sonos's construction.

MR. KAPLAN: I don't know how I can refer 12:37:50 to Sonos's construction otherwise, so let me ask the witness.

BY MR. KAPLAN:

Q If I refer to Sonos's construction for the local playback queue and resource locator terms, 12:38:00

will you understand what I'm referencing?

MR. LEE: Same objection.

I think he's just critiquing those constructions of Google's.

THE WITNESS: So in looking at -- if I have in my declaration under Google's proposed construction, Google's proposed construction, as we all know, is an ordered list of multimedia items that's selected by the user for playback and Sonos's proposed construction is plain and ordinary meaning, no construction is necessary. 12:38:15 12:38:31

So is that -- when you say Sonos's construction, are you -- do you mean by that plain and ordinary meaning, no construction necessary?

BY MR. KAPLAN: 12:38:47

Q I mean the plain and ordinary meaning construction proposed by Sonos and as discussed by you in your declaration.

A Okay.

Q So you can answer. 12:39:03

A Now that we've narrowed it down to what is meant by my construction, which is really the plain and ordinary meaning no construction necessary construction, can we please repeat the question?

Q Under Sonos's proposed constructions, would 12:39:17

you agree that the Internet server's adding resource locators to a playback queue?

MR. LEE: Same objection; incomplete hypothetical, vague.

THE WITNESS: Again, I would really have to take a look to see what is going on here. I don't know how said Internet servers work. I don't know how the playback queue is being defined. I don't know how -- I mean, in your hypothetical, I'm not sure what you mean by "resource locators" and what kinds of information is coming from the Internet. 12:39:31 12:39:53

So really to do a fair and thorough justice to your question, I would have to know more -- the hypothetical would have to be flushed out quite a bit. I probably would have to do some analysis to see what it's doing to know if it matches the construction, the plain and ordinary meaning construction. 12:40:10

BY MR. KAPLAN:

Q Are you familiar with the C++ Standard Template Library? 12:40:18

A Yes.

Q You've taught the C++ Standard Template Library in your classes at Vanderbilt?

A I have. 12:40:30

Q Does the C++ Standard Library define queues?

A Yes. It defines several different queues.

Q There's one queue in particular that's defined in the C++ Standard Template Library; right? 12:40:40

MR. LEE: Objection.

THE WITNESS: No, there's not.

BY MR. KAPLAN:

Q How many different queues are defined in the C++ Standard Template Library? 12:40:41

A Well, there's at least three different queues that are defined in the Standard Template Library.

Q What are their names?

A One is called Queue, another one is called 12:41:03 Priority Queue, and there's another one that's called Stack.

But then there's other types of queues that are defined in other ways that work in different -- that provide collections of data. 12:41:19

So there's probably more of them, but those are three -- they're actually what's known as container adapters.

Q So when I say the C++ Standard Template Library Queue, can we agree that I'm referring to 12:41:33

the actual queue as designed in the C++ Standard Template Library?

THE REPORTER: I'm sorry. Can you say that question again?

MR. KAPLAN: Maybe I can rephrase the question just to make sure the witness and I are speaking the same language. 12:41:54

BY MR. KAPLAN:

Q When I ask what the names of the different queues are as defined in the C++ Standard Template Library, I believe you said that they are Queue, Priority Queue and Stack. 12:42:06

Is that fair?

A Those are some of the queues -- the queueing mechanisms that are defined in C++ Standard Template Library. 12:42:21

Q So the first one of those is called Queue and I'd like to refer to that as the C++ Standard Template Library Queue. Is that okay?

A I think maybe a more precise way of saying that would be the container adapter whose class name is Queue, because, again, there's other kinds of queues that are part of the C++ Standard Template Library. 12:42:39

Q That's a bit of a mouthful. 12:42:58

If I said the class that's called Queue, would you understand what I'm referring to?

A Yes.

Q The class that's called Queue, is that a FIFO structure? 12:43:11

MR. LEE: Objection to the form, foundation, vague.

THE WITNESS: That's a good question.

I believe it is, but I would have to go back and double check to make sure there's not other 12:43:39 capabilities that can be accessed through that interface.

BY MR. KAPLAN:

Q With the class Queue, you can push elements into the end of the queue; correct? 12:43:49

MR. LEE: Objection; form.

THE WITNESS: The class in C++ whose name is Queue, as I recall, has a push method that will add an element to the end of the underlying data representation. 12:44:21

There could be different representations used to implement the queue. That's one of the features of queues or container adapters in C++, is you can actually have data structures under the hood that implement the mechanisms that they provide. 12:44:36

But if my memory serves me correctly, one of the operations on the C++ STL queue is indeed push, keeping in mind that there are other types of queues in C++ STL.

BY MR. KAPLAN: 12:44:54

Q The class queue has the ability to pop elements off the front of the queue; correct?

MR. LEE: Same objection; form, vague.

THE WITNESS: Again, it's my recollection that the C++ class named queue has pop operator that 12:45:06 will remove an item from the front of the queue, although it's got rather strange semantics in that it does not actually return the item that was removed, which is kind of strange.

But, again, it's one of a number of 12:45:30 different ways of implementing the concept of the queue.

MR. KAPLAN: Dr. Schmidt, could you open Exhibit 6, which I've just uploaded.

(Whereupon, Google Exhibit 6 was 12:45:51 marked for identification by the Court Reporter.)

THE WITNESS: Okay. I've got it.

BY MR. KAPLAN:

Q Exhibit 6 is a presentation entitled "Key 12:46:23

STL Features: Containers, Iterators, & Algorithms," and it has your name, Douglas C. Schmidt, on the first page.

Do you see that?

A I do. 12:46:41

Q Is this a presentation that you created while you were at Vanderbilt?

A Actually, it's a portion of a presentation that I created when I was a professor earlier and have used at Vanderbilt. 12:46:55

Q You've used this presentation Exhibit 6 at Vanderbilt?

A That's correct.

Q Did you use this presentation in conjunction with teaching a C++ class? 12:47:06

A It was a course called Intermediate Software Design, which is a course that covers different ways of advanced -- well, maybe intermediary programming -- intermediate software development focusing on design patterns, as well as 12:47:24 good programming techniques, debugging techniques, source code, and software engineering, management techniques, and parts of C++ are also covered as well.

Q If you go to page 7 of this presentation, 12:47:40

there's a chart on the right. It includes a column, in the second row down, that chart element says "queue" and then to the right of that there's a column that says "characteristics." It says, "First-in/first-out data structure." 12:48:00

Do you see that?

A There's a bunch of pages named number 7.

Which one are you referring to in the PDF?

Q There are. I'm actually referring to the final page -- 12:48:15

A Okay.

Q -- of the PDF.

A Yes. Those are the examples of the various container adapters we were talking about earlier.

Q Next to queue, it says, "First-in/first-out data structure." 12:48:27

Do you see that?

A I do.

Q Does that refresh your recollection as to whether or not the class queue is the first-in/first-out data structure? 12:48:34

A That's the way it's defined in C++, yes.

Q In this presentation, do you refer to stacks as queues?

A If you take a -- this is -- as I mentioned, 12:48:52

this is an excerpt from a much longer set of material on C++ and the Standard Template Library.

If you were to go look in more detail at later parts that have been omitted here in the slides you're showing me, there's extensive discussions of the APIs that are available for both Stack -- well, for both Stack, Queue and Priority Queue, and they all have the same API. 12:49:08

And so as a result, they're treated inconsistent -- in consistent ways with respect to the operations. It's simply that the way in which the container's implemented and the semantics as defined in C++, which is not the only way to do things, of course, relative to what queues are; certainly not relevant to playback queues, per se. 12:49:24 12:49:44

So, yes. There's parts of those APIs that are similar, so they all have the same interface.

Q In the larger set of materials that you're referring to, those materials refer to the class queue -- strike that. 12:49:59

Sorry. I have to do a big wind up again in the larger set of materials that you're referring to.

Are there portions of those materials that refer to the class Stack as a queue? 12:50:12

A There are portions of that material that describe how the interfaces for stacks and queues and priority queues are all the same and, therefore, what differs is the way the implementation handles the protocol for adding or removing elements from the container adapter. 12:50:31

Q For example -- sorry.

Go ahead.

A So when I teach those parts of the course, I always mention that the interface is for Stack and Queue and Priority Queue are the same. 12:50:44

Q The operations within the class queue are different than the operations within the class Stack; right -- strike that.

I can ask a better question. 12:51:06

The functions within the class queue are different than the functions within the class Stack; correct?

MR. LEE: Objection to form.

THE WITNESS: I think as I just explained, the interface is for Stack and Queue and Priority Queue are all the same. They have operations like -- or largely the same. They have operations like -- I believe it's push and pop, which are very strange names for a queue especially. 12:51:16 12:51:32

I believe, if I'm not mistaken, they have operations push and pop defined on all of them, and so those operations have the same signatures.

Is that what you are asking?

BY MR. KAPLAN: 12:51:48

Q Is the class Stack in the C++ Standard Template Library a last-in/first-out data structure?

MR. LEE: Objection to form.

THE WITNESS: It depends what you'd substantiate it with. 12:52:05

BY MR. KAPLAN:

Q So can I draw your attention to the last page of the presentation in Exhibit 6.

And on that last page next to Stack, it says "first-in/last-out data structure." 12:52:17

Do you see that?

A I do.

Q Do you agree that the Stack is a first-in/last-out data structure?

A Again, if you're asking me in the context 12:52:26 of C++ STL, it all depends on what kind of container parameter you pass to the container adapter. Container adapters are basically, as the name suggests, adapters, and you provide them with container implementations, for lack of a better 12:52:51

term, and they adapt them in different ways.

So depending what you pass in, how you -- how you parameterize the container adapter, be it Stacked, Queue or Priority Queue, that actually dictates the behavior that you will get when you called a common operations push and pop on instances of those container adapters that have been substantiated. 12:53:08

Q So is it your opinion that the Stack container might be a first-in/last-out data structure and it might not? 12:53:22

A That is correct.

Q Is your opinion that the Queue might be a first-in/first-out data structure, or it might not?

A That's also correct. 12:53:33

Q Is that what your presentation says here on the final page of Exhibit 6?

A No. This is just describing one of the out-of-the box behaviors. But if your question was how does a Stack work, how does the Stack container adapter work in C++ STL, the thorough answer to the question is it depends on the type of container implementation that you use to substantiate the Stack template. 12:53:48

Q Does a Stack -- strike that. 12:54:06

Does a Queue as defined by the C++ Standard Template Library have order?

MR. LEE: Objection to form.

THE WITNESS: Again, keeping in mind the bigger context here, the term "playback queue" as defined in the '615 and '033 Patent and not relating to C++ in any way, shape, or form. 12:54:23

One of the default behaviors for the C++ container adapter queue is to provide first-in/first-out semantics. 12:54:42

As to how it achieves that, again, is an implementation detail.

BY MR. KAPLAN:

Q My question was: Does a queue as defined in the C++ Standard Template Library have order? 12:54:59

MR. LEE: Objection to form.

THE WITNESS: Again, going back to what I was saying before, in the C++ Standard Template Library, the behavior of the queue depends on how you substantiate the queue container and adapter. 12:55:20

So there's no one answer to that question, number 1. So the answer is it depends similar to the question you asked me before.

Likewise, just to make the point more clear, the C++ STL container adapters that have the 12:55:34

word "queue" in them are not at all relevant in the context of playback queue as defined in the '615 and the '033 Patent specifications and claims.

MR. KAPLAN: Can we take a very quick three- or four-minute break? 12:56:10

MR. LEE: Sure. Let's go off the record. Sit in place.

THE VIDEOGRAPHER: We're off the record at 12:56 p.m.

(Whereupon, a recess was held 12:56:19
from 12:56 p.m. to 1:02 p.m.)

THE VIDEOGRAPHER: We're on the record at 1:02 p.m.

MR. KAPLAN: Dr. Schmidt, thank you very much for your time today. 13:02:50

No further questions.

THE WITNESS: Thank you.

MR. LEE: We have no questions for you either, Dr. Schmidt.

THE WITNESS: Thank you. 13:02:56

MR. KAPLAN: You may reserve signature.

MR. LEE: We'll reserve signature.

Thank you, Marc.

THE VIDEOGRAPHER: Off the record at 1:03 p.m. 13:03:09

This concludes today's testimony given by Douglas Schmidt, Ph.D. The total number of media units used was four and will be retained by Veritext Legal Solutions.

(Whereupon the deposition proceedings were concluded at 1:03 p.m.)

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STATE OF CALIFORNIA)
) ss.
COUNTY OF LOS ANGELES)

I, DOUGLAS SCHMIDT, Ph.D., declare under penalty of perjury that the foregoing testimony is true and correct to the best of my knowledge and belief.

Dated this ___ day of _____, 2022.

_____
(DOUGLAS SCHMIDT, Ph.D.)

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss.

I, D'Anne Moungey, C.S.R. No. 7872 in and for the State of California, do hereby certify:

That prior to being examined, the witness named in the foregoing deposition was by me duly sworn to testify to the truth, the whole truth, and nothing but the truth;

That said deposition was taken down by me in shorthand at the time and place therein named and thereafter reduced to typewriting under my direction, and the same is a true, correct, and complete transcript of said proceedings;

That if the foregoing pertains to the original transcript of a deposition in a Federal Case, before completion of the proceedings, review of the transcript {X} was { } was not required.

I further certify that I am not interested in the event of the action.

Witness my hand this 8th day of March, 2022.

Certified Shorthand Reporter
For the State of California

GEORGE LEE, ESQ.

lee@ls3ip.com

March 8, 2022

RE: GOOGLE LLC VS. SONOS, INC.

MARCH 3, 2022, DOUGLAS SCHMIDT, PH.D., JOB NO. 5116748

The above-referenced transcript has been completed by Veritext Legal Solutions and review of the transcript is being handled as follows:

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__ Per CA State Code (CCP 2025.520 (a)-(e)) – Locked .PDF Transcript - The witness should review the transcript and make any necessary corrections on the errata pages included below, notating the page and line number of the corrections. The witness should then sign and date the errata and penalty of perjury pages and return the completed pages to all appearing counsel within the period of time determined at the deposition or provided by the Code of Civil Procedure.

__ Waiving the CA Code of Civil Procedure per Stipulation of Counsel - Original transcript to be released for signature as determined at the deposition.

__ Signature Waived – Reading & Signature was waived at the time of the deposition.

_X_Federal R&S Requested (FRCP 30(e)(1)(B)) – Locked .PDF Transcript - The witness should review the transcript and make any necessary corrections on the errata pages included below, notating the page and line number of the corrections. The witness should then sign and date the errata and penalty of perjury pages and return the completed pages to all appearing counsel within the period of time determined at the deposition or provided by the Federal Rules.

__ Federal R&S Not Requested - Reading & Signature was not requested before the completion of the deposition.

RE: GOOGLE LLC VS. SONOS, INC.

DOUGLAS SCHMIDT, PH.D., JOB NO. 5116748

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

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Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

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